



# CMS API Reference

Release 3.0



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# About This Guide

The *CMS API Reference* provides reference information for the CMS Application Programmer Interface (API). The CMS API enables CMS to integrate with external Business Support Systems and Operations Support Systems (BSS and OSS).

The following chapters are included:

- [Working with the CMS API](#). Provides general information about the CMS API, including how to perform supported operations.
- [Audit Management Service](#). Provides details about the operations related to system audit entries.
- [Device Diagnostics Service](#). Provides details about TR-098 diagnostics that can be run against devices.
- [Device Management Service](#). Provides details about the operations related to devices.
- [Group Management Service](#). Provides details about the operations related to the groups that organize devices.
- [Scheduled Workflow Management Service](#). Provides details about the operations related to scheduled workflows.
- [Subscriber Management Service](#). Provides details about the operations related to subscribers.
- [Twowire Management Service](#). Provides details about the operations specific to the management of 2Wire devices.
- [Workflow Management Service](#). Provides details about the operations related to workflows.

## Audience

This document is intended for 2Wire Professional Services and developers who are integrating CMS with external BSS and OSS systems. Users of this API reference should be familiar with XML and have a basic understanding of web services.

## Style Conventions

The following style conventions are used in this guide:

### Typographical Conventions

Convention	Used For
Blue Text	Cross references
<b>Bold</b>	Interface elements that are clicked or selected
<i>Italic</i>	Emphasis, book titles, variables, list terms

### Typographical Conventions

Convention	Used For
Monospace	Command syntax and code
<i>Monospace Italic</i>	Variables within command syntax and code

## Related Documents

In addition to this guide, the CMS documentation library includes:

- *CMS Installation Guide*. Provides instructions for installing and configuring the out-of-box implementation of CMS.
- *CMS Management Console Help*. Provides detailed instructions for working with the CMS Management Console web application.
- *CMS Overview*. Provides an introduction to CMS, including details about product functionality and concepts.
- *CMS Release Notes*. Specifies system requirements, known issues, and resolved issues for the current release.



## CHAPTER 1

# Working with the CMS API

The CMS Application Programmer Interface (API) enables CMS to integrate with external Business Support Systems and Operations Support Systems (BSS and OSS) for provisioning, account management, reporting, and monitoring of managed devices. The CMS API is accessed using the Simple Object Access Protocol (SOAP) web services messaging protocol. This interface is described by Web Services Description Language (WSDL) documents that define the operations for each service.

## Understanding Request Messages

CMS web services require all SOAP requests to conform to the Extensible Markup Language (XML) schema defined in the web service's WSDL. The structure of the XML response is specific to the associated request.

CMS exposes web services using the HTTP/HTTPS transport mechanism only. It is highly recommended that messages be sent over Hypertext Transfer Protocol Secure (HTTPS).

The following is an example of a request message that searches for a managed device:

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:SearchDevicesRequest>
      <v1:expression>
        <v11:expression xsi:type="v11:SearchableExpression">
          <v11:searchable>
            <v11:key>OrganizationId</v11:key>
            <v11:categoryName>Device</v11:categoryName>
          </v11:searchable>
          <v11:operator>EQ</v11:operator>
          <v11:searchableValue xsi:type="v11:StringSearchableValue">
            <v11:value>1001</v11:value>
          </v11:searchableValue>
        </v11:expression>
        <v11:groupingOperator>AND</v11:groupingOperator>
        <v11:searchType>com.twowire.dmc.model.Device</v11:searchType>
      </v1:expression>
    </v1:SearchDevicesRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

Each message must include the request, as specified in the WSDL. Refer to the Sample Request section of each operation description in this document. In addition, the message's SOAP header can include:

- A UsernameToken header, which is required when WS-Security UsernameToken authentication is used. Refer to [Authenticating Messages](#) on page 3.
- A business transaction ID, which enables CMS to track all CMS activity associated with the request and allows the external system to track and correlate activities associated with an external business event, such as provisioning a service. Refer to [Incorporating Business Transaction Identifiers](#) on page 4.

## Understanding Responses

In response to a request message, CMS may return an XML data structure that conforms to the XML schema defined in the web service's WSDL. Each response is specific to the type of request. Refer to the Sample Response section of each operation description in this document.

The following is an example of a response after a managed device was searched for and found:

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns4:SearchDevicesResponse xmlns:ns4="http://twowire.com/dmc/apps/nbiws/
      devicemgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0"
      xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0"
      xmlns:ns5="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0"
      xmlns:ns6="http://twowire.com/dmc/apps/nbiws/manufacturermgmt/v1_0"
      xmlns:ns7="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0"
      xmlns:ns8="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0"
      xmlns:ns9="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0">
      <ns4:resultCount>1</ns4:resultCount>
      <ns4:deviceId>1220</ns4:deviceId>
    </ns4:SearchDevicesResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

## Requesting Information with the CMS API

To issue a request from an external system, you must perform an HTTP POST of the message contents associated with the operation to `https://app_server.port/dmc-nbiws/`, or `https://app_server.port/dmc-nbiws-ext-2wire` for Twowire Management operations, where `app_server` is the IP address or host name of the CMS application server (if you are using one application server) or load balancer (if you are using multiple application servers and a load balancer) and `port` is the SSL internal port set during installation. You can contact your CMS administrator for this information.

## Interacting with the API through WSDL URLs

To generate the client-side code needed to interact with the API, enter the URL for the WSDL into your development tool. The URLs for these WSDLs are:

- AuditManagement  
`http://app_server.port/dmc-nbiws/auditManagement.wsdl`
- DeviceDiagnostics  
`http://app_server.port/dmc-nbiws/deviceDiagnostics.wsdl`
- DeviceManagement  
`http://app_server.port/dmc-nbiws/deviceManagement.wsdl`
- GroupManagement  
`http://app_server.port/dmc-nbiws/groupManagement.wsdl`
- ScheduledWorkflowManagement  
`http://app_server.port/dmc-nbiws/scheduledWorkflowManagement.wsdl`
- SubscriberManagement  
`http://app_server.port/dmc-nbiws/subscriberManagement.wsdl`
- TwowireManagement  
`http://app_server.port/dmc-nbiws-ext-2wire/twowireManagement.wsdl`
- WorkflowManagement  
`http://app_server.port/dmc-nbiws/workflowManagement.wsdl`

In these URLs, *app\_server* is the IP address or host name of the CMS application server (if you are using one application server) or load balancer (if you are using multiple application servers and a load balancer) and *port* is the SSL internal port set during installation. You can contact your CMS administrator for this information.

## Authenticating Messages

External systems must be authenticated in order to interact with CMS. They can be authenticated with SSL mutual authentication, which is recommended, or with WS-Security UsernameToken authentication.

### Authenticating with SSL Mutual Authentication

With SSL mutual authentication, the external system and the CMS server authenticate one another using X.509 certificates. SSL mutual authentication is quicker than WS-Security UsernameToken authentication and is recommended for all production systems. Contact 2Wire Professional Services for information about setting up SSL mutual authentication.

### Authenticating with WS-Security UsernameToken Authentication

WS-Security UsernameToken is available out-of-box. When this method of authentication is used, a security header must be added to each request to provide the user name and password for a user account with the BSS/OSS System role. The out-of-box username and password are *nbiws* and *2wire*.

The following is an example of a message that includes UsernameToken information, including the security header and the related wsse namespace declaration at the top of the message:

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Header>
    <wsse:Security>
      <wsse:UsernameToken>
        <wsse:Username>myusername</wsse:Username>
        <wsse:Password Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-username-token-profile-1.0#PasswordText">mypassword
        </wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
  </soapenv:Header>
  <soapenv:Body>
    <v1:SearchDevicesRequest>
      <v1:expression>
        <v11:expression xsi:type="v11:SearchableExpression">
          <v11:searchable>
            <v11:key>OrganizationId</v11:key>
            <v11:categoryName>Device</v11:categoryName>
          </v11:searchable>
          <v11:operator>EQ</v11:operator>
          <v11:searchableValue xsi:type="v11:StringSearchableValue">
            <v11:value>1001</v11:value>
          </v11:searchableValue>
        </v11:expression>
        <v11:groupingOperator>AND</v11:groupingOperator>
        <v11:searchType>com.twowire.dmc.model.Device</v11:searchType>
      </v1:expression>
    </v1:SearchDevicesRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

## Incorporating Business Transaction Identifiers

Business transaction IDs are unique identifiers associated with an external system. These IDs can be added to an element in the request to add context so that the transaction can be tracked in CMS.

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Header>
    <v11:BusinessTransactionID>A54D78SD654WK756KN</v11:BusinessTransactionID>
  </soapenv:Header>
  <soapenv:Body>
```

```

<v1:SearchDevicesRequest>
  <v1:expression>
    <v11:expression xsi:type="v11:SearchableExpression">
      <v11:searchable>
        <v11:key>OrganizationId</v11:key>
        <v11:categoryName>Device</v11:categoryName>
      </v11:searchable>
      <v11:operator>EQ</v11:operator>
      <v11:searchableValue xsi:type="v11:StringSearchableValue">
        <v11:value>1001</v11:value>
      </v11:searchableValue>
    </v11:expression>
    <v11:groupingOperator>AND</v11:groupingOperator>
    <v11:searchType>com.twowire.dmc.model.Device</v11:searchType>
  </v1:expression>
</v1:SearchDevicesRequest>
</soapenv:Body>
</soapenv:Envelope>

```

## Understanding SOAP Faults

When an error is thrown, a SOAP fault returns contextual information about what happened. Each SOAP fault includes:

- A fault code that defines whether the issue is related to the client (such as an invalid request) or to the server (such as when there is a problem with the server).
- An explanation of the issue.
- An optional detail element that, if present, contains a type code indicating the cause of the failure. This fault code corresponds to the fault type codes listed in the fault definition for each operation.

The following SOAP fault codes may be returned in response to unclassified or un-typed exceptions:

- “SOAP-ENV:Server” corresponds to internal server errors, such as when a network outage prevents access from CMS to the database to fulfill a request. No detail element is provided for this fault code.
- “SOAP-ENV:Client” with a fault/detail/type element of `IllegalArgumentException` corresponds to generic validity checks performed by the server on the arguments sent from the client. Such faults are returned when either:
  - Schema validation is disabled on the incoming requests or the constraint could not be expressed in terms of XML schema.
  - A more specific fault type is not thrown, such as `InvalidExpressionException` or `NoSuchEntityException`.

For example:

```

<SOAP-ENV:Fault>
  <faultcode>SOAP-ENV:Client</faultcode>
  <faultstring xml:lang="en">Invalid subscriber identifier: acc number</faultstring>
  <detail>
    <type xmlns="http://twowire.com/dmc/apps/nbiws/base/v1_0">IllegalArgumentException</type>
  </detail>
</SOAP-ENV:Fault>

```

```

    </detail>
  </SOAP-ENV:Fault>

```

- “SOAP-ENV:Client” with a fault string of “Validation error” is generated when a SOAP request sent to the server does not comply with the WSDL. The detail element contains one or more schema validation errors. For example:

```

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/
envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <SOAP-ENV:Fault>
      <faultcode>SOAP-ENV:Client</faultcode>
      <faultstring xml:lang="en">Validation error</faultstring>
      <detail>
        <spring-ws:ValidationError xmlns:spring-ws="http://
springframework.org/spring-ws">cvc-pattern-valid: Value
'01000' is not facet-valid with respect to pattern '[1-9][0-
9]*' for type 'EntityID'.</spring-ws:ValidationError>
        <spring-ws:ValidationError xmlns:spring-ws="http://
springframework.org/spring-ws">cvc-type.3.1.3: The value
'01000' of element 'ns940:id' is not valid.</spring-
ws:ValidationError>
      </detail>
    </SOAP-ENV:Fault>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

Other faults returned vary by operation. Refer to the Fault Type Codes section of each operation description in this document.

## Understanding Data Types

The following data types are used in the CMS API:

### AbstractPersistentType

A base type for entities that are inserted into or retrieved from the persistent store.

`AbstractPersistentType` is an abstract type with the following elements:

- `id`. An [EntityID](#) value for the persistent identity set when new entities are persisted on the server. This element is read-only and optional. Clients sending new entities to be persisted should not send this element and can, for example, leave it null.
- `created`. A [dateTime](#) value for the timestamp indicating when the persistent entity was created in the persistent store. This element is read-only and optional. Clients sending new entities to be persisted should not send this element and can, for example, leave it null.
- `createdBy`. A [string](#) value for the identifier of the entity responsible for creating the object in the persistent store. This element is read-only and optional. Clients sending new entities to be persisted should not send this element and can, for example, leave it null.

- `lastModified`. A [dateTime](#) value for the timestamp indicating when the persistent entity was last modified in the persistent store. This element is read-only and optional. Clients sending new entities to be persisted should not send this element and can, for example, leave it null.
- `lastModifiedBy`. A [string](#) value for the identifier of the last entity responsible for modifying the object in the persistent store. This element is read-only and optional. Clients sending new entities to be persisted should not send this element and can, for example, leave it null.
- `uuid`. A [string](#) value for the Universally Unique Identifier (UUID). This element is optional.

### AbstractWorkflowParameterValue

An abstract base class for workflow parameter values. `AbstractWorkflowParameterValue` is an abstract type.

### AuditEntry

An audit entry within the system, documenting the type, time, actor, and details of a specific event. `AuditEntry` is an abstract type and contains the following elements:

- `user`. A [string](#) value for the actor responsible for the event that caused this audit entry to be created.
- `occurred`. A [dateTime](#) value for the timestamp indicating when the event was recorded.
- `businessTransactionID`. A [BusinessTransactionID](#) value for the business transaction context within which the event occurred. This element is optional.

### AuthenticationAuditEntry

An audit entry recording the result of an authentication attempt to the system. The `user` element in the base `AuditEntry` type records the user name presented for the attempted authentication. `AuthenticationAuditEntry` is a sub-type of `AuditEntry` and has the following element:

- `status`. An [AuthenticationAuditEntryStatus](#) value for the resulting status of the authentication attempt.

### AuthenticationAuditEntryStatus

The resulting status of an authentication attempt made on the system. Enumerated values include the following:

- `SUCCESS`. The attempt was successful.
- `FAILURE`. The attempt failed.
- `UNKNOWN`. An unknown outcome was recorded.

### BeanBasedWorkflowDefinition

A workflow definition based on a bean class. `BeanBasedWorkflowDefinition` is a sub-type of `WorkflowDefinition` and contains the following element:

- `beanClassName`. A [string](#) value for the name of the bean class. It must be 1-256 characters in length.

## boolean

A true (1) or false (0) value.

## BooleanSearchableValue

Specifies XSD boolean values to a searchable expression for which the searchable's targetClass is `java.lang.Boolean`.

`BooleanSearchableValue` is a sub-type of `SearchableValue` and contains the following element:

- `value`. A `boolean` value for the value. This element is optional, and there can be more than one specified.

## BusinessTransactionID

A `string` value for the business transaction identifier which, when placed into the SOAP header of a request made to the server, is maintained on any enqueued work in the system and included in auditing events occurring in response to the processing of the business transaction. It must be 1-32 characters in length.

## CaptivePortalConfiguration

Defines a captive portal configuration for a node in the policy tree. Captive portal configuration limits the outbound sites accessible by a device.

`CaptivePortalConfiguration` is a sub-type of `AbstractPersistentType`. It contains the following elements:

- `redirectUrl`. A `string` value for the URL to which all requests are redirected for which the site portion of the URL is not contained within the whitelist (typically a registration page). It must be 1-2048 characters in length.
- `whitelist`. A `string` value for an IP address and optional subnet mask, represented in Classless Inter-Domain Routing (CIDR) format, not covered by the captive portal and to which a user of the device is permitted to access. The whitelist should include the IP address that represents the `redirectUrl`. This element is optional, and there can be more than one specified. It must be 1-2048 characters in length.

## ConfigurationAuditEntry

An audit entry for recording a change related to system configuration.

`ConfigurationAuditEntry` is a sub-type of `AuditEntry` and contains the following element:

- `operation`. A `ConfigurationAuditEntryOperation` value for the operation performed.



## ConfigurationAuditEntryOperation

A configuration operation performed on the system. Enumerated values include the following:

- `IMPORT_CONFIGURATION`. A system configuration has been successfully imported.
- `IMPORT_DEVICE_CREDENTIALS`. New device credentials have been imported into the system.
- `UNKNOWN`. An unknown operation was performed.

## ConfigurationProfile

A configuration profile definition used to observe and define parameter settings on a device. `ConfigurationProfile` is a sub-type of `AbstractWorkflowParameterValue` and contains the following elements:

- `parameter`. A `string` value for the TR-069 parameter path on a device managed by the profile. It must be 1-4000 characters in length.
- `observationRule`. A `ConfigurationProfileObservationRule` value for the observation rule to apply to the parameter.
- `definitionRule`. A `ConfigurationProfileDefinitionRule` for the definition rule to apply to the parameter.
- `value`. A `string` value for the value to which to set the parameter when a definition rule other than `NONE` is specified. This element is optional. It must be 4000 or fewer characters in length.
- `deviceClassifier`. A `DeviceClassifier` value used to determine whether the configuration profile applies to a device.

## ConfigurationProfileDefinitionRule

A `string` value for how a parameter covered by a configuration profile should be set. Enumerated values include the following:

- `NONE`. No value should be set.
- `DEFINE`. The value should be set once and allowed to change.
- `ENFORCE`. The value should be fixed and reset by the system whenever it is observed to have changed. The observation rule for the parameter must not be set to `NONE`.

## ConfigurationProfileObservationRule

A `string` value for how a parameter covered by a configuration profile should be observed, such as how a parameter should be recorded by the system. Enumerated values include the following:

- `NONE`. This parameter should not be observed.
- `PASSIVE`. TR-069 passive notification should be enabled for the parameter.
- `ALWAYS`. The parameter should be recorded on every device Inform.
- `ACTIVE`. TR-069 active notification should be enabled on the parameter.

## CronRecurringSchedule

The definition of a recurring schedule using cron's expression syntax to define the recurrence pattern. `CronRecurringSchedule` is a sub-type of `Schedule` and contains the following elements:

- `startOn`. A `date` value for the date on which the recurrence becomes effective.
- `endOn`. A `date` value for the date after which the recurrence ceases to be effective. If not specified, the recurrence has no end. This element is optional.
- `cronExpression`. A `string` value for the cron expression defining the recurrence pattern. It must be 1-256 characters in length.

## CustomDeviceProperty

A custom key-value pair specified on a device. A `CustomDeviceProperty` provides a means to perform custom classification, searching, and grouping using customer-defined keys and values. `CustomDeviceProperty` contains the following elements:

- `key`. A `string` value for the key portion of the pair. This value must be 1-256 characters in length.
- `value`. A `string` value for the value associated with the key. This value must be 1-512 characters in length.

## date

A date in the format `YYYY-MM-DD`, where:

- `YYYY` indicates the year
- `MM` indicates the month
- `DD` indicates the day

To specify a time zone, you can either enter a date in UTC time by adding a “Z” behind the date or specify an offset from the UTC time by adding a positive or negative time behind the date.

## DateSearchableValue

Specifies searchable date values to a `SearchableExpression` for which the searchable's `targetClass` is `java.util.Date`.

`DateSearchableValue` is a sub-type of `SearchableValue` and contains the following element:

- `value`. A `SearchableDate` value for the date value supplied to the searchable expression. This element is optional, and there can be more than one specified.

## dateTime

A date and a time in the format `YYYY-MM-DDThh:mm:ss`, where:

- `YYYY` indicates the year
- `MM` indicates the month
- `DD` indicates the day
- `T` indicates the start of the required time section

- `hh` indicates the hour
- `mm` indicates the minute
- `ss` indicates the second

To specify a time zone, you can either enter a date in UTC time by adding a “Z” behind the time or specify an offset from the UTC time by adding a positive or negative time behind the time.

## DCProfile

A bulk data collection group. `DCProfile` is a sub-type of `AbstractPersistentType` and contains the following elements:

- `name`. A `string` value for the name of the bulk data collection entity. It must be 1-128 characters in length and unique in the system.
- `description`. A `string` value for the description of the DC entity. It must be 512 or fewer characters in length and is optional.
- `parameter`. A `DCProfileElement` value for a bulk data profile element. This element is optional, and there can be more than one specified.

## DCProfileElement

A parameter to collect for bulk data collection. `DCProfileElement` is a sub-type of `AbstractPersistentType` and contains the following elements:

- `parameter`. A `string` value for the parameter path to collect. It must be 1-4000 characters in length.
- `classifier`. A `DeviceClassifier` value for the classifier for which this parameter is valid.

## DependentDevice

An indirectly addressable device that acts as a slave device behind an addressable device, such as a residential gateway. `DependentDevice` is a sub-type of `AbstractPersistentType` and contains the following elements:

- `serialNumber`. A `string` value for the serial number of the device.
- `oui`. An `OUI_TYPE` value for the OUI of the manufacturer of the device.
- `productClass`. A `string` value for the product class of the device. This element is optional.
- `lastInform`. A `dateTime` value for the timestamp indicating when the device last communicated with the ACS. Note that such communication may occur indirectly through the device's addressable master device. This element is optional.
- `hardwareVersion`. A `string` value for the hardware version of the device. This element is optional.
- `modelName`. A `string` value for the hardware's name of the model. This element is optional.
- `modelDescription`. A `string` value for hardware's description of the model. This element is optional.
- `softwareVersion`. A `string` value for the firmware version of the device. This element is optional.

- `manufacturerName`. A [string](#) value for the name of the manufacturer. This element is optional.
- `dataModelPath`. A [string](#) value for the parameter path of the dependent device in the master device's data model.

## DependentDeviceSelector

A base type for objects capable of specifying one (or more) dependent devices. `DependentDeviceSelector` is an abstract type and a sub-type of [EntitySelector](#).

## Device

Detail of a device within the system. `Device` is a sub-type of [AbstractPersistentType](#) and contains the following elements:

- `serialNumber`. A [string](#) value for the serial number of the device.
- `oui`. An [OUI\\_TYPE](#) value for the OUI of the manufacturer of the device.
- `productClass`. A [string](#) value for the product class of the device.
- `manufacturerName`. A [string](#) value for the name of the manufacturer. This element is optional.
- `modelName`. A [string](#) value for the hardware's name of the model. This element is optional.
- `modelDescription`. A [string](#) value for hardware's description of the model. This element is optional.
- `macAddress`. A [string](#) value for the MAC address of the device. This element is optional.
- `lastInform`. A [dateTime](#) value for the timestamp indicating when the device last sent a successful inform to the ACS. This element is optional.
- `firstInform`. A [dateTime](#) value for the timestamp indicating when the device first communicated with the ACS. This element is optional.
- `connectionRequestURL`. A [string](#) value for the connection request URL for contacting the device.
- `hardwareVersion`. A [string](#) value for the hardware version of the device. This element is optional.
- `softwareVersion`. A [string](#) value for the firmware version of the device. This element is optional.
- `WANIPAddress`. A [string](#) value for the WAN-side IP address of the device. This element is optional.
- `numericWANIPAddress`. An [integer](#) value for the numeric representation of the WAN-side IP address of the device. This value is typically only useful for IP range-based searches and grouping.
- `LANIPAddress`. A [string](#) value for the LAN-side IP address of the device. This element is optional.
- `provisioningCode`. A [string](#) value for the provisioning code of the device. This element is optional.
- `subscriberId`. An [EntityID](#) value for the internal ID of the device's subscriber. This element is optional.

- `organizationName`. A [string](#) value for the name of the organization to which the device belongs. This element is optional.
- `organizationId`. An [EntityID](#) value for the internal ID of the organization to which the device belongs. This element is optional.
- `deviceClassifier`. A [DeviceClassifier](#) value for the device classifier associated with this device. It is used for functions such as searching, policy classification, and workflow selection. This element is optional, and there can be more than one specified.
- `dependentDevice`. A [DependentDevice](#) value for the non-addressable slave device dependent on the containing device. This element is optional, and there can be more than one specified.
- `customProperty`. A [CustomDeviceProperty](#) value for the custom property key-value pair set on the device. This element is optional, and there can be more than one specified.
- `service`. A [string](#) value for the name of the subscriber services fulfilled by this device. This element is optional, and there can be more than one specified.

### DeviceAndPathDependentDeviceSelector

Selects a single dependent device by the owning device and the data model path for the individual dependent device. `DeviceAndPathDeviceSelector` is a sub-type of [DependentDeviceSelector](#) and contains the following elements:

- `deviceSelector`. A [DeviceSelector](#) value for the parent device selector.
- `path`. A [string](#) value for the dependent device's data model path, which uniquely identifies it for a given parent device.

### DeviceAuditEntry

An audit entry for a device-related change. `DeviceAuditEntry` is a sub-type of [AuditEntry](#) and contains the following elements:

- `deviceId`. An [EntityID](#) value for the internal ID of the affected device.
- `operation`. A [EntityCRUDAuditEntryOperation](#) value for the operation performed.

### DeviceAuditEntryOperation

A [string](#) value for an operation performed on a device, as recorded in an audit entry for the device. Enumerated values include the following:

- `NEW_DEVICE`. A record was manually created for the device, such as in a pre-provisioning scenario. Device records are normally created automatically as needed upon successful authentication; however, if pre-provisioning activities need to be performed, such as enqueueing work for the device to be run upon boot, then the device record may need to be created in advance.
- `FIRST_CONTACT`. First contact from the device with respect to the current subscriber. For example, a given device may be reused following an RMA and therefore may have multiple first-contact events. However, only a single first contact event should occur for any subscriber.
- `CONNECTION_REQUEST`. A connection request was issued to the device.
- `UPDATE_CUSTOM_PROPERTIES`. One or more custom properties of the device were updated.

- `CLEAR_RECORD`. The device's record was cleared, removing any subscriber-specific content and preparing the device to be reused with a different subscriber.
- `REPLACE_DEVICE`. The device was replaced with a new device.
- `UNKNOWN`. An unknown operation was performed.

## DeviceClassifier

A label used to classify or categorize a device. The system applies classifiers to devices automatically using a variety of mechanisms. Classifiers can represent things such as kinds of hardware, firmware, and ability to fulfill services. They are used within the system to determine management decisions, such as the applicable workflows to execute on devices, configuration profiles to be applied, and services to be provisioned.

`DeviceClassifier` is a sub-type of [AbstractPersistentType](#) and contains the following element:

- `name`. A [string](#) value for the name of the classifier. It must be 1-64 characters in length.

## DeviceCollectedParameter

Parameter data, such as TR-069 or TR-098 data models and extensions, collected for a specific device. It includes the following elements:

- `parameterName`. A [string](#) value for the name of the data model parameter.
- `collected`. A [dateTime](#) value for the most recent time the parameter was collected or observed by the system.
- `value`. A [string](#) value for the current value of the collected parameter. This element is optional.

## DeviceDSLiagnosticsStatus

A [string](#) value for the status of the DSL diagnostics performed on the device. Enumerated values include the following:

- `SUCCESS`
- `FAILURE`

## DeviceGroup

An abstract grouping of devices. `DeviceGroup` is an abstract type and a sub-type of [AbstractPersistentType](#) and contains the following elements:

- `name`. A [string](#) value for the name of the group. It must be 1-128 characters in length.
- `description`. A [string](#) value for the description of the group. This element is optional. It must be 512 or fewer characters in length.

## DeviceGroupSelector

A base type for objects capable of specifying a [DeviceGroup](#), for use in group-oriented APIs. `DeviceGroupSelector` is an abstract type and a sub-type of [EntitySelector](#).

## DeviceGroupToDCProfile

A mapping of groups to DCProfiles. This is a Many to Many table. `DeviceGroupToDCProfile` is a sub-type of [AbstractPersistentType](#) and contains the following elements:

- `groupName`. A [string](#) value for the group name associated with this profile.
- `dcProfileName`. A [string](#) value for the profile name associated with this profile.

## DeviceReplacedAuditEntry

An audit entry recording the replacement of an existing device with either a new or different existing device. `DeviceReplacedAuditEntry` is a sub-type of [AuditEntry](#) and contains the following element:

- `newDeviceId`. An [EntityID](#) value for the internal ID of the new device, having replaced a prior device recorded as the `deviceId` element in the supertype.

## DeviceSelector

A base type for objects capable of specifying one or more devices, for use in device-oriented operations. `DeviceSelector` is an abstract type and a sub-type of [EntitySelector](#).

## DeviceWorkflowStatus

A [string](#) value for the status of a device workflow. Enumerated values include the following:

- `Incomplete`. The workflow has yet to be executed and is still enqueued, pending delivery to the device.
- `Completed`. The workflow completed successfully.
- `TimedOut`. The workflow timed out.
- `Failed`. The workflow failed.
- `Canceled`. The workflow was canceled.
- `DissociatedFromSubscriber`. The device associated with the workflow was dissociated from the subscriber, resulting in all enqueued workflows being canceled.

## DiagnosticsResponse

Data model key-value pairs containing the results of a diagnostics execution on a device. The specific contents are dependent on the diagnostic executed and, possibly, the make, model, and firmware of the device. It includes the following element:

- `parameterValue`. A [NameValuePair](#) value for the device data model parameter path and associated value containing diagnostic results. This element is optional, and there can be more than one specified.

## DynamicGroup

A group of devices in which the membership is not statically defined, but is instead resolved using a search expression. `DynamicGroup` is a sub-type of `DeviceGroup` and contains the following element:

- `rootExpression`. A `RootExpression` value that defines the membership of the group. The `searchType` of the expression must be `com.twowire.dmc.model.Device`.

## EntityCRUDAuditEntry

An audit entry for a Create, read, update, and delete (CRUD) operation on a specific entity. `EntityCRUDAuditEntry` is a sub-type of `AuditEntry` and contains the following elements:

- `entityId`. An `EntityID` value for the internal ID of the affected entity.
- `entityType`. A `string` value for the type of the affected entity.
- `operation`. An `EntityCRUDAuditEntryOperation` value for the operation performed on the affected entity.

## EntityCRUDAuditEntryOperation

A `string` value for an operation performed on an entity, as recorded in an audit entry for the entity. Enumerated values include the following:

- `INSERT`. Insertion or creation of an entity.
- `UPDATE`. Update of an entity.
- `DELETE`. Deletion of an entity.
- `UNKNOWN`. An unknown operation was performed.

## EntityID

A `string` value for an internal ID within the system. This should be treated as an opaque value by consuming systems. It must be at least 1 character in length and must match the following pattern:

```
[1-9][0-9]*
```

## EntitySelector

An abstract type that defines a means of selecting entities (persistent objects) from the system. Such selectors are primarily used on requests to identify the target objects on which to act. `EntitySelector` is an abstract type.

## Expression

An abstract expression that can be evaluated against persistent entities within the system for searching and grouping purposes. `Expression` is an abstract type and a sub-type of `AbstractPersistentType`.



## ExpressionDeviceSelector

Selects arbitrary devices through the use of an expression. `ExpressionDeviceSelector` is a sub-type of `DeviceSelector` and contains the following element:

- `expression`. A `RootExpression` value for the expression for which the root expression is of type `com.twowire.dmc.model.Device`.

## ExpressionPolicyNode

An interior node of a policy tree associated with an expression in which the expression is used to determine whether the policy is applicable to a device. `ExpressionPolicyNode` is a sub-type of `PolicyNode` and contains the following element:

- `expression`. An `Expression` value for the expression used to determine applicability of the policy to a device.

## FailureCountScheduleAbortPolicy

A failure count-based schedule abort policy. `FailureCountScheduleAbortPolicy` is a sub-type of `ScheduleAbortPolicy` and contains the following element:

- `failureCount`. An `int` value for the threshold number of failures after which the scheduled job should be terminated. The value must be greater than 0.

## FailureRateScheduleAbortPolicy

A failure rate-based schedule abort policy. `FailureRateScheduleAbortPolicy` is a sub-type of `ScheduleAbortPolicy` and contains the following element:

- `failureRate`. A `float` value for the threshold rate of failures after which the scheduled job should be terminated. The value must be greater than 0 and less than or equal to 100.

## Firmware

Details of a firmware image which may be applicable to a device or dependent device. `Firmware` is a sub-type of `AbstractPersistentType` and contains the following elements:

- `name`. A `string` value for the name of the firmware image.
- `description`. A `string` value for the description for the firmware image. This element is optional.
- `version`. A `string` value for the firmware image version.
- `oui`. An `OUI_TYPE` value for the OUI for which this is valid.
- `modelIdentifierName`. A `string` value for the model identifier names for which the firmware image is valid. This element is optional, and there can be more than one specified.

## FirmwareScheduledWorkflow

A workflow for a firmware upgrade. `FirmwareScheduledWorkflow` is a sub-type of `ScheduledWorkflow`. Although this type adds no additional elements, it serves as a marker to the scheduler to indicate the scheduled job is a firmware scheduled workflow.

## FirmwareUpdateMap

Defines the firmware to automatically update to given a manufacturer and from version.

`FirmwareUpdateMap` is a sub-type of `AbstractPersistentType` and has the following elements:

- `fromVersion`. A `string` value for the from version. It must be 1-128 characters in length.
- `modelIdentifier`. A `ModelIdentifier` value for the model identifier key portion of the lookup.
- `oui`. An `OUI` value for the OUI. This and the `firmwareName` look up the firmware for this map.
- `firmwareName`. A `string` value for the firmware name. This and the `oui` look up the firmware for this map.

## float

A single-precision 32-bit IEEE 754 floating point.

## GenericAuditEntry

A generic audit entry used when no specific audit entry type is applicable or defined.

`GenericAuditEntry` is a sub-type of `AuditEntry` and contains the following elements:

- `type`. A `string` value for the type of the entry.
- `property`. A basic property key-value pair providing detail for the audit entry. This element is optional, and there can be more than one specified. `property` contains the following elements:
  - `name`. A `string` value for the name of the property.
  - `value`. A `string` value for the value of the property. This element is optional.

## GroupExpression

A container for expressions which, for evaluation purposes, are connected with an AND or OR grouping operator.

`GroupExpression` is a sub-type of `Expression` and contains the following elements:

- `expression`. An `Expression` value for the expression contained within the group expression. This element is optional, and there can be more than one specified.
- `groupOperator`. A `GroupingOperator` value for the operator applied to the group's expressions during evaluation.

## GroupingOperator

A `string` value for how groups are evaluated with respect to each other, following normal boolean left-to-right evaluation rules.

Enumerated values include the following:

- `AND`. The groups are logically connected using the AND operator.
- `OR`. The groups are logically connected using the OR operator.

## HardwarePatternMatch

Defines rules for applying device classifiers to devices based on manufacturer and regular expression matching on the device hardware and firmware versions. `HardwarePatternMatch` is a sub-type of `AbstractPersistentType` and contains the following elements:

- `pattern`. A `string` value for the hardware version regular expression pattern. It must be 1-200 characters in length.
- `firmwarePattern`. A `string` value for the firmware version regular expression pattern. This element is optional. It must be 200 or fewer characters in length.
- `oui`. An `OUI_TYPE` value for the device's hex-formatted OUI, with no other formatting characters.
- `deviceClassifier`. A `DeviceClassifier` value for the device classifier to be applied when the OUI and hardware and firmware versions pattern match a device.

## HPNAChannel

HPNA channel information returned from a `2Wire` device. `HPNAChannel` contains the following elements:

- `hpnaSourceMacAddress`. A `string` value for the HPNA source MAC address associated with the channel.
- `hpnaDestMacAddress`. A `string` value for the HPNA destination MAC address associated with the channel.
- `hostSourceMacAddress`. A `string` value for the host source MAC address associated with the channel.
- `hostDestMacAddress`. A `string` value for the host destination MAC address associated with the channel.
- `phyRate`. An `unsignedInt` value for the Channel PHY rate (expressed in Mbps).
- `baudRate`. An `unsignedInt` value for the PHY Baud rate (expressed in Kbaud).
- `snr`. An `unsignedInt` value for the Channel actual SNR measured in receiver side (expressed in 0.1 dB).
- `packetsSent`. An `unsignedInt` value for the number of packets sent in the channel.
- `packetsReceived`. An `unsignedInt` value for the pre-LARQ number of packets received in the channel.
- `larqPacketsReceived`. An `unsignedInt` value for the post-LARQ number of packets received in the channel. Valid only if LARQ is enabled.

## HPNANode

HPNA information as of a point in time for a given MAC address. `HPNANode` contains the following elements:

- `macAddress`. A `string` value for the MAC address of the HPNA interface.
- `packetsSent`. An `unsignedInt` value for the total number of packets sent by host equipment for transmission on the HPNA interface. Number includes also short error packets and control packets.
- `packetsReceived`. An `unsignedInt` value for the total number of packets received on the HPNA interface destined for the host equipment.

- `bytesSent`. An `unsignedInt` value for the total number of bytes sent by host equipment to for transmission on the HPNA interface.
- `bytesReceived`. An `unsignedInt` value for the total number of received bytes on the HPNA interface destined for the host equipment.
- `broadcastPacketsSent`. An `unsignedInt` value for the number of broadcast packets transmitted on the HPNA interface.
- `broadcastPacketsReceived`. An `unsignedInt` value for the number of broadcast packets received on the HPNA interface.
- `multicastPacketsSent`. An `unsignedInt` value for the number of multicast packets transmitted on the HPNA interface.
- `multicastPacketsReceived`. An `unsignedInt` value for the number of multicast packets received on the HPNA interface.
- `packetsCrcErrored`. An `unsignedInt` value for the number of packets received on the HPNA interface with CRC errors.
- `packetsCrcErroredHost`. An `unsignedInt` value for the number of CRC error packets received on the HPNA interface destined for the host equipment.
- `packetsShortErrored`. An `unsignedInt` value for the number of packets received on the HPNA interface that are too short to be valid.
- `rxPacketsDropped`. An `unsignedInt` value for the number of received packets dropped due to lack of resources.
- `packetsShortHost`. An `unsignedInt` value for the number packets sent by the host equipment that are too short to be valid.
- `txPacketsDropped`. An `unsignedInt` value for the number packets sent by the host equipment for transmission on the HPNA interface but dropped due to lack of resources.
- `controlRequestLocal`. An `unsignedInt` value for the number of HPNA control request packets from local host.
- `controlReplyLocal`. An `unsignedInt` value for the number of HPNA control reply packets to local host.
- `controlRequestRemote`. An `unsignedInt` value for the number of HPNA control request packets from remote host.
- `controlReplyRemote`. An `unsignedInt` value for the number of HPNA control reply packets to remote host.
- `packetsSentWire`. An `unsignedInt` value for the total number of packets transmitted to wire.
- `broadcastPacketsSentWire`. An `unsignedInt` value for the total number of broadcast packets transmitted to wire.
- `multicastPacketsSentWire`. An `unsignedInt` value for the total number of multicast packets transmitted to wire.
- `packetsInternalControl`. An `unsignedInt` value for the number of HPNA control request packets from internal node.
- `broadcastPacketsInternalControl`. An `unsignedInt` value for the number of HPNA broadcast control request packets from internal node.
- `packetsReceivedQueued`. An `unsignedInt` value for the number of received packets queued on host output queues.

- `packetsReceivedForwardUnknown`. An `unsignedInt` value for the number of packets received and forwarded to unknown hosts.
- `nodeUtilization`. An `unsignedInt` value for the node utilization (expressed in 0.1%).

### IdDependentDeviceSelector

Selects a dependent device using its internal ID. The ID should be treated as an opaque string value. `IdDependentDeviceSelector` is a sub-type of `DependentDeviceSelector` and contains the following element:

- `id`. An `EntityID` value for the dependent device's ID.

### IdDeviceGroupSelector

Selects a single `DeviceGroup` using its internal ID. The ID should be treated as an opaque string value. `IdDeviceGroupSelector` is a sub-type of `DeviceGroupSelector` and contains the following element:

- `id`. An `EntityID` value for the `DeviceGroup`'s ID.

### IdDeviceSelector

Selects one or more devices using their internal IDs. The ID should be treated as an opaque string value. `IdDeviceSelector` is a sub-type of `DeviceSelector` and contains the following element:

- `id`. An `EntityID` value for the device's ID. There can be more than one specified.

### IdentifierValueSubscriberSelector

Selects a single Subscriber using a value for one of the configured subscriber identifiers. `IdentifierValueSubscriberSelector` is a sub-type of `SubscriberSelector` and contains the following element:

- `identifierValue`. A `NameValuePair` value for a subscriber identifier name-value pair.

### IdSubscriberSelector

Selects a single Subscriber using its internal ID. The ID should be treated as an opaque string value. `IdSubscriberSelector` is a sub-type of `SubscriberSelector` and contains the following element:

- `id`. An `EntityID` value for the subscriber's ID.

### int

A signed 32-bit integer, a numerical value without a fractional component. It has a minimum value of -2,147,483,648 and a maximum value of 2,147,483,647 (inclusive).

### integer

A numerical value without a fractional component.

### IntegerSearchableValue

Specifies XSD integer values to a searchable expression for which the searchable's targetClass is `java.lang.Integer`.

`IntegerSearchableValue` is a sub-type of `SearchableValue` and contains the following element:

- `value`. An `integer` value for the integer value supplied to the searchable expression. This element is optional, and there can be more than one specified.

### IntSearchableValue

Specifies XSD int values to a searchable expression for which the searchable's targetClass is `java.lang.Integer`.

`IntSearchableValue` is a sub-type of `SearchableValue` and contains the following element:

- `value`. An `int` value for the int value supplied to the searchable expression. This element is optional, and there can be more than one specified.

### KeyValueServiceProvisioningDetail

Maintains a subscriber's service configuration as a set of key-value pairs.

`KeyValueServiceProvisioningDetail` is a sub-type of `ServiceProvisioningDetail` and contains the following elements:

- `configurationKeyValue`. A `ServiceConfigurationKeyValuePair` value for the configuration key-value pair applied to the provisioning details. This element is optional, and there can be more than one specified.

### KeyValueWorkflowParameterValue

A key-value workflow parameter. `KeyValueWorkflowParameterValue` is a sub-type of `AbstractWorkflowParameterValue` and contains the following elements:

- `key`. A `string` value for the key portion of the key-value pair. It must be 1-256 characters in length.
- `value`. A `string` value for the value portion of the key-value pair. It must be 4000 or fewer characters in length.

### long

A signed 32-bit integer, a numerical value without a fractional component. It has a minimum value of -9,223,372,036,854,775,808 and a maximum value of 9,223,372,036,854,775,807 (inclusive).

## Manufacturer

A device manufacturer. `Manufacturer` is a sub-type of [AbstractPersistentType](#) and contains the following elements:

- `name`. A [string](#) value for the name of the manufacturer. It must be 1-128 characters in length.
- `oui`. An [OUI](#) value for the IEEE OUI for the manufacturer. This element is optional and there can be more than one specified.

## ModelIdentifier

Defines a device hardware model, which can be associated with firmware images to control applicability of the firmware image to devices. `ModelIdentifier` is a sub-type of [AbstractPersistentType](#) and contains the following elements:

- `name`. A [string](#) value for the name of the model. This must be unique within a given manufacturer and is typically the hardware version of a device. It must be 1-128 characters in length.
- `description`. A [string](#) value for the description of the model. It must be 512 or fewer characters in length and is optional.

## NameDeviceGroupSelector

Selects a single [DeviceGroup](#) using its name. `NameDeviceGroupSelector` is a sub-type of [DeviceGroupSelector](#) and contains the following element:

- `name`. A [string](#) value for the group's name.

## NameValuePair

A generic name-value (or key-value) pair, used for specifying data in other operations. `NameValuePair` contains the following elements:

- `name`. A [string](#) value for the key portion of the pair.
- `value`. A [string](#) value for the value portion of the pair.

## NonRecurringSchedule

The definition of a non-recurring schedule, which occurs only once, on a configured day and time. `NonRecurringSchedule` is a sub-type of [Schedule](#) and contains the following elements:

- `occursOn`. A [date](#) value for the date on which the schedule will be executed.
- `startTime`. A [time](#) value for the start time of the window during which the schedule is executed.

## Operator

A [string](#) value for an operation used in a searchable expression to specify a comparison function between the data from a persistent entity (as defined by a searchable) and one or more values given in the expression's searchable values. Enumerated values include the following:

- EQ. Equals.
- NE. Not equals.
- LT. Less than.
- LE. Less than or equal to.
- GT. Greater than.
- GE. Greater than or equal to.
- LIKE. Like, as defined by SQL.

## Organization

Defines policy to be applied to member devices. All devices are associated to a specific organization. [Organization](#) is a sub-type of [AbstractPersistentType](#) and contains the following elements:

- `name`. A [string](#) value for the name of the organization. It must be 1-128 characters in length.
- `description`. A [string](#) value for the description of the organization. This element is optional. It must be 512 or fewer characters in length.
- `defaultOrganization`. A [boolean](#) value for whether this organization is the default organization. There must be a single default organization in the system to match devices that do not match another organization.
- `provisioningCodeId`. An [int](#) value for the organization provisioning code ID. This is used by the default device-organization matching service within the system to select the organization for new devices. This mechanism extracts the organization ID from the device's provisioning code and attempts to find an organization that the `provisioningCodeId` matches.
- `policyRoot`. A [RootPolicyNode](#) value for the root policy node for the organization, for which all other policy decisions are children.
- `firmwareUpdateMap`. A [FirmwareUpdateMap](#) value for the map of from-to versions for automatic firmware update for this organization. This element is optional, and there can be more than one specified.

## OUI

Defines a device Organizationally Unique Identifier (OUI). [OUI](#) is a sub-type of [AbstractPersistentType](#) and contains the following elements:

- `oui`. An [OUI\\_TYPE](#) value for the OUI for the manufacturer.
- `modelIdentifier`. A [ModelIdentifier](#) value for the model associated with the manufacturer. This element is optional, and there can be more than one specified.



## OUI\_TYPE

A [string](#) value for the Organizationally Unique Identifier (OUI), a 24-bit number that uniquely identifies a vendor or manufacturer. `OUI_TYPE` must be 6 characters in length and must match the following pattern:

```
[A-F0-9]{6}
```

## ParamValuePair

A workflow parameter and its associated value, which are used to provide argument values to parameterized workflows. `ParamValuePair` contains the following elements:

- `workflowParameter`. A [WorkflowParameter](#) value to which the workflow parameter applies.
- `value`. An [AbstractWorkflowParameterValue](#) value for the value that corresponds to the parameter.

## PolicyNode

An abstract means of applying policy decisions to devices. A policy node is a node within a larger policy tree. Policy is inherited or aggregated, as well as overridden, as the tree is traversed down from the root. `PolicyNode` is an abstract type and a sub-type of [AbstractPersistentType](#) and contains the following elements:

- `name`. A [string](#) value for the name of the policy node. It must be 1-64 characters in length.
- `description`. A [string](#) value for the description of the policy node. This element is optional. It must be 256 or fewer characters in length.
- `captivePortalEnabled`. A [boolean](#) value for whether captive portal is enabled on the node. If false, it is disabled. If null, it inherits the value from the parent node. It cannot be null on the root node. This element is optional.
- `captivePortalConfiguration`. A [CaptivePortalConfiguration](#) value for captive portal configuration to be applied by the policy node. If null, no captive portal configuration is applied. This element is optional.
- `cdnFirmwareImageBaseUrl`. A [string](#) value for the base URL from which firmware is downloaded for devices matching this policy. If null, the firmware URL is inherited from the parent node. This element is optional. It must be 512 or fewer characters in length.
- `node`. A [PolicyNode](#) value for the child policy nodes of this node. This element is optional and there can be more than one specified.
- `workflowConfiguration`. A [WorkflowConfiguration](#) value for the workflow configuration applied to devices matching this policy. This element is optional, and there can be more than one specified.
- `deviceClassifier`. A [DeviceClassifier](#) value for the ordering of device classifiers on this node. This ordering is used to resolve conflicts for configuration profiles in scenarios in which multiple profiles match a device. There can be more than one specified.
- `configurationProfile`. A [ConfigurationProfile](#) value for a configuration profile applied by this policy. This element is optional, and there can be more than one specified.

## QueuedDeviceWorkflow

Data describing a workflow enqueued against a specific device. `QueuedDeviceWorkflow` is a sub-type of `AbstractPersistentType` and contains the following elements:

- `workflowDefinitionId`. An `EntityID` value for the internal ID of the enqueued workflow.
- `workflowDefinitionName`. A `string` value for the name of the enqueued workflow.
- `scheduledWorkflowId`. An `EntityID` value for the scheduled workflow, if the workflow was enqueued as a result of a scheduled workflow. This element is optional.
- `jmsDestinationName`. A `string` value for the JMS destination name, if any, to which the workflow results will be delivered. This element is optional. It must be 128 or fewer characters in length.
- `jmsContext`. A `string` value for the context key used for correlation with an asynchronous request which caused the workflow to be enqueued, if a JMS destination is defined. This element is optional. It must be 256 or fewer characters in length.
- `businessTransactionID`. A `BusinessTransactionID` value for the business transaction context within which the workflow was enqueued. This element is optional.
- `cancelAfter`. A `dateTime` value for the latest time when the queued workflow will be valid, after which it will be deleted.
- `earliestExecutionTime`. A `dateTime` value for the earliest (database-relative) time the workflow is permitted to be executed. If null, immediate execution upon receipt is permitted. This element is optional.
- `parameterValue`. A `WorkflowParameterAndValue` value for the parameter values to be applied to the execution of the workflow. This element is optional, and there can be more than one specified.

## RootExpression

Defines the top-most (root) of an expression node. The root expression defines the entity type from which the search expression is evaluated.

`RootExpression` is a sub-type of `GroupExpression` and contains the following element:

- `searchType`. A `string` value for the type of object being searched (the domain of the search). It is nullable for device search reasons. The receiving endpoint will set the `searchType` in the proper context. For example, `deviceManagementService.searchDevices` will autoselect it to `com.twowire.dmc.model.Device`. This element is optional. It must be 64 or fewer characters in length.

## RootPolicyNode

The root node of a policy tree. Root policy nodes may only appear as the root of the policy tree. `RootPolicyNode` is a sub-type of `PolicyNode`.

## Schedule

An abstract schedule, typically associated with a scheduled job, such as a scheduled workflow. `Schedule` is an abstract type and a sub-type of `AbstractPersistentType`.

## ScheduleAbortPolicy

An abstract definition of a schedule abort policy. Such policies define the criteria used to automatically terminate a scheduled job. `ScheduleAbortPolicy` is an abstract type.

## ScheduledObjectAuditEntry

An audit entry corresponding to a scheduled object's activity. `ScheduledObjectAuditEntry` is a sub-type of `AuditEntry` and contains the following elements:

- `scheduledObjectId`. An `EntityID` value for the internal ID of the affected scheduled object.
- `scheduledObjectType`. A `string` value for the type of the affected scheduled object.
- `operation`. A `ScheduledObjectAuditEntryOperation` value for the operation performed.

## ScheduledObjectAuditEntryOperation

An operation performed on a scheduled object, such as a scheduled firmware upgrade. Enumerated values include the following:

- `EXECUTED`. A scheduled execution of the object has occurred.
- `DEACTIVATED`. The scheduled object has been deactivated. For the deactivation reason, refer to the scheduled object instance.
- `UNKNOWN`. An unknown operation was performed.

## ScheduledWorkflow

A scheduled interaction that performs tasks on a group of devices. `ScheduledWorkflow` is a sub-type of `AbstractPersistentType` and contains the following elements:

- `description`. A `string` value for the description for the scheduled workflow. This element must have a length of 512 or fewer characters and is optional.
- `active`. A `boolean` value for whether the scheduled workflow is active.
- `deactivationReason`. A `ScheduledWorkflowDeactivationReason` value for the reason a scheduled workflow became inactive. It is null if the scheduled workflow is active. This element is optional.
- `deactivated`. A `dateTime` value for the timestamp the scheduled workflow was deactivated. This element is null if the scheduled workflow is active. This element is optional.
- `deviceTimeMarginToExecuteBeforeCancel`. An `int` value for the amount of time in days a device has after its scheduled inform time to come to the ACS and pickup the work. If this time is exceeded, the workflow will be canceled. The value must be greater than 0.
- `maxDevicesPerOccurrence`. An `int` value for the maximum number of devices scheduled per execution of the scheduled workflow. This element is optional.
- `enforceOncePerDevice`. A `boolean` value for whether the system enforces that a given device is scheduled exactly once for the duration of the workflow. This implies the scheduler must track which devices have been processed. Depending on the configuration of the scheduled workflow, this may not be necessary, and thus disabling this feature in such situations has cost benefits.

- `deactivateWhenNoDevicesAreSelected`. A [boolean](#) value for whether the scheduler should automatically deactivate the scheduled workflow using the completed deactivation reason when no devices are selected from the scheduled workflow's associated group. Typically this is set to true if the schedule is simply intended to process all members of the group once. For ongoing schedules (such as recurring processing against the same devices), this should be set to false.
- `schedule`. A [Schedule](#) value for the schedule defining when the workflow is executed.
- `workflowDefinitionName`. A [string](#) value for the name of the workflow to be executed by the schedule.
- `deviceGroupId`. An [EntityID](#) value for the internal ID of the device group against which the scheduled workflow is executed. Must not be null on creation of the scheduled workflow, but may be null on retrieval of the group associated with a terminated scheduled workflow has subsequently been deleted.
- `abortPolicy`. A [ScheduleAbortPolicy](#) value for an abort policy for the scheduled workflow. This element is optional.
- `executionWindow`. A [TimeWithUnits](#) value for the duration of the execution window during which the scheduled workflow should be executed against the selected devices. The scheduler attempts to uniformly distribute execution of the workflows against the devices throughout this window.
- `parameterValue`. A [ScheduledWorkflowParameterAndValue](#) value for a parameter value to be applied to the execution of the workflow. This element is optional, and there can be more than one specified.

### ScheduledWorkflowDeactivationReason

A [string](#) value for the enumeration of possible reasons the scheduled workflow was deactivated. Enumerated values include the following:

- `Completed`. The scheduled workflow completed normally.
- `Canceled`. The scheduled workflow was canceled.
- `AbortedDueToErrorRateExceeded`. The scheduled workflow was aborted due to the schedule's error rate or count-based abort policy.
- `Unknown`. The scheduled workflow was deactivated for an unknown reason.

### ScheduledWorkflowParameterAndValue

A parameter used for the scheduled workflow. `ScheduledWorkflowParameterAndValue` includes the following elements:

- `actionName`. A [string](#) value for the action within the workflow to which the parameter applies. If null, the global scope is implied. It must be 1-256 characters in length. This element is optional.
- `parameterName`. A [string](#) value for the name of the parameter on the specified action within the workflow. It must be 1-256 characters in length.
- `value`. An [AbstractWorkflowParameterValue](#) value for the parameter. There can be more than one specified.

## ScheduledWorkflowSummary

Summary information for a scheduled workflow. `ScheduledWorkflowSummary` includes the following elements:

- `scheduledWorkflow`. A [ScheduledWorkflow](#) value for the scheduled workflow details.
- `devicesProcessed`. An `int` value for the number of devices processed to-date for the scheduled workflow.
- `devicesRemaining`. An `int` value for the number of devices remaining to be processed.
- `completed`. An `int` value for the number of devices that have successfully completed execution of the workflow.
- `failed`. An `int` value for the number of devices that have failed execution of the workflow.
- `canceled`. An `int` value for the number of devices for which execution of the workflow was canceled. Cancellation can happen due to manual intervention, such as when a user or other external system requests the enqueued workflow be canceled for a device. Cancellation also occurs when a device for which a scheduled workflow was enqueued is dissociated from a subscriber, at which point all remaining enqueued workflows are canceled.

## Searchable

Identifies a property path on a persistent entity from which a value can be obtained, to be compared to searchable values within a searchable expression. `Searchable` is a sub-type of [AbstractPersistentType](#) and contains the following elements:

- `key`. A `string` value that, when combined with `categoryName`, uniquely identifies the searchable within the system. It must be 1-256 characters in length.
- `propertyPath`. A `string` value for the path, relative to the type of object being searched, within the persistent model represented by this searchable. This element is optional. It must be 512 or fewer characters in length.
- `targetClass`. A `string` value for the type name of the searchable. That is, the kind of data defined at the property path represented by this searchable. This element is optional. It must be 256 or fewer characters in length.
- `containerClass`. A `string` value for the container type name of the searchable. The Java class name of the type on which the property referenced by the `propertyPath` element is defined. This value is only defined for property paths ending with ".id". This element is optional. It must be 256 or fewer characters in length.
- `collection`. A `boolean` value for whether the data within the persistent model associated with this searchable represents a collection and is multi-valued. This element is optional.
- `dateTime`. A `boolean` value for whether the data within the persistent model associated with this searchable represents a `dateTime` instead of just a `date`. This element is optional.
- `categoryName`. A `string` value that describes the category to which the searchable belongs. The category is simply an organizing mechanism for searchables relative to the same searchable type.

## SearchableDate

A means of expression date search criteria to a searchable expression. `SearchableDate` contains the following elements:

- `date`. A [dateTime](#) value for the date to be supplied to the searchable expression, or null when performing searches relative to the current time.
- `offsetDays`. An [int](#) value for the offset applied to the given date before performing searches. This is only useful when performing relative searches in which the date is specified as null. Using the offset in such cases allows the caller to perform searches such as “devices that last informed more than a day ago”. For absolute date searches, the offset should be specified as 0.

## SearchableExpression

An expression that evaluates the value of a specific property on a persistent entity (identified by a [Searchable](#)) against values supplied by the expression ([SearchableValues](#)) by an [Operator](#). A searchable expression permits comparison of entity values, such as “Device.serialNumber like ‘105%’” and “Device.oui == ‘00D09E’”.

`SearchableExpression` is a sub-type of [Expression](#) and contains the following elements:

- `searchable`. A [Searchable](#) value for the property path of a persistent entity used as the source against which the expression’s values are compared. For many operators, this forms the left-hand side of the expression.
- `operator`. An [Operator](#) value for the operator used to perform the expression’s evaluation.
- `searchableValue`. A [SearchableValue](#) value for the value (or values) against which to compare the value on the persistent entity identified by the searchable. This forms the right-hand side of the expression.

## SearchableValue

Provides one or more values to a searchable expression. The value of the object specified by a searchable in the persistent object model is compared to these values (using the operator defined on the searchable expression) to evaluate the expression. Note that the concrete instance of a searchable value in a searchable expression must match the type of the expression’s searchable. Therefore, a string searchable must be paired with a string searchable value, not an int searchable value. `SearchableValue` is an abstract type and a sub-type of [AbstractPersistentType](#).

## SerialNumberAndOUIDeviceSelector

Selects a single Device by serial number and OUI. `SerialNumberAndOUIDeviceSelector` is a sub-type of [DeviceSelector](#) and contains the following elements:

- `serialNumber`. A [string](#) value for the device’s serial number. It must be at least 1 character in length.
- `oui`. An [OUI\\_TYPE](#) value for the device’s hex-formatted OUI, with no other formatting characters.

## Service

A subscriber service, such as High Speed Internet or IPTV. *Service* is a sub-type of [AbstractPersistentType](#) and contains the following elements:

- `name`. A [string](#) value for the unique name of the service within the system. It must be 1-128 characters in length.
- `description`. A [string](#) value for the description of the service. It must be 512 or fewer characters in length and is optional.
- `deviceClassifier`. A [DeviceClassifier](#) value for the classifier used to determine whether a device can support the service.

## ServiceConfigurationKeyValuePair

Key-value pair defining configuration for a particular service.

*ServiceConfigurationKeyValuePair* includes the following elements:

- `key`. A [string](#) value for the configuration parameter. This element must be 1-256 characters in length.
- `value`. A [string](#) value for the value of the configuration parameter. This element must be 4000 or fewer characters in length.

## ServicePolicyNode

A policy node tied to a service. The policy is applied only to devices to which the service has been provisioned. *ServicePolicyNode* is a sub-type of [PolicyNode](#) and contains the following element:

- `serviceName`. A [string](#) value for the name of the service associated with the policy node.

## ServiceProvisioningDetail

Provisioning details for a specific service, applied to a subscriber. Such details contain configuration information associated with the subscriber, which is used to properly provision a service on the subscriber's devices. *ServiceProvisioningDetail* is an abstract type and a sub-type of [AbstractPersistentType](#) and contains the following element:

- `service`. A [string](#) value for the name of the service to which this provisioning detail applies.

## SetDeviceParameterValuesStatus

A [string](#) value for the status of the device parameters to be set. Enumerated values, which are defined by TR-069 set parameter values response codes, include the following:

- COMMITTED
- APPLIED\_NOT\_YET\_COMMITTED

## SimpleWorkflowParameterValue

A simple value for a workflow parameter. `SimpleWorkflowParameterValue` is a sub-type of `AbstractWorkflowParameterValue` and contains the following element:

- `value`. A `string` value for the parameter value. It must be 4000 or fewer characters in length.

## StaticGroup

A group that maintains an association between the group and its member devices in the database. `StaticGroup` is a sub-type of `DeviceGroup`.

## string

One or more characters as well as line feeds, carriage returns, and tab characters.

## StringSearchableValue

Specifies XSD string values to a searchable expression for which the searchable's `targetClass` is `java.lang.String`.

`StringSearchableValue` is a sub-type of `SearchableValue` and contains the following element:

- `value`. An `string` value supplied to the searchable expression. This element is optional, and there can be more than one specified.

## SubscriberAuditEntry

An audit entry for a subscriber-related change. `SubscriberAuditEntry` is a sub-type of `AuditEntry` and contains the following elements:

- `subscriberId`. An `EntityID` value for the internal ID of the affected subscriber.
- `deviceId`. An `EntityID` value for the internal ID of the affected device. This element is optional.
- `operation`. A `SubscriberAuditEntryOperation` value for the operation performed.

## SubscriberAuditEntryOperation

A `string` value for an operation performed on a subscriber, as recorded in an audit entry for the subscriber. Enumerated values include the following:

- `ASSOCIATED_TO_DEVICE`. The subscriber has been associated to a device.
- `DISSOCIATED_FROM_DEVICE`. The subscriber has been dissociated from a device.
- `ADD_SERVICE`. A service has been added to the subscriber.
- `MODIFY_SERVICE`. An existing service associated with the subscriber has been modified.
- `DELETE_SERVICE`. A service has been deleted from the subscriber.
- `UNKNOWN`. An unknown operation was performed.



## SubscriberDetail

A key-value pair defining optional subscriber details. It has the following elements:

- `key`. A [string](#) value for the detail key, its unique, descriptive name. It must be 1-256 characters in length.
- `value`. A [string](#) value for the value of the detail. It must be 1-4000 characters in length.

## SubscriberDeviceSelector

Selects devices by subscriber identifier. `SubscriberDeviceSelector` is a sub-type of [DeviceSelector](#) and contains the following element:

- `identifierValue`. A [NameValuePair](#) value for a unique identifier name and value for the subscriber.

## SubscriberReference

A subscriber reference, containing the unique identifiers by which a subscriber can be queried and, in turn, by which associated devices can be found. `SubscriberReference` is a sub-type of [AbstractPersistentType](#) and contains the following elements:

- `identifierValue`. A [NameValuePair](#) value for a unique identifier name and value for the subscriber. There can be more than one specified.
- `service`. A [string](#) value for the name of the service applied to the subscriber. This element is optional, and there can be more than one specified.
- `serviceProvisioningDetail`. A [ServiceProvisioningDetail](#) value for the provisioning details for a service applied to the subscriber. Note that provisioning details are optional and need not be present for a given service on the subscriber. This element is optional, and there can be more than one specified.
- `subscriberDetail`. A [SubscriberDetail](#) value for a subscriber detail to be stored within the system, such as account billing address. This element is optional, and there can be more than one specified.

## SubscriberSelector

A base type for objects capable of specifying a subscriber, for use in subscriber-oriented APIs. `SubscriberSelector` is an abstract type and a sub-type of [EntitySelector](#).

## time

A time specified in the format `hh:mm:ss`, where:

- `hh` indicates the hour
- `mm` indicates the minute
- `ss` indicates the second

To specify a time zone, you can either enter a date in UTC time by adding a “Z” behind the time or specify an offset from the UTC time by adding a positive or negative time behind the time.

## TimeUnit

A [string](#) value for a unit of time. Enumerated values include the following:

- `MILLISECONDS`
- `SECONDS`
- `MINUTES`
- `HOURS`
- `DAYS`

## TimeWithUnits

A time duration that contains the following elements:

- `value`. An [int](#) value for the number of units. This value must be 1 or more characters in length. The minimum value is the smallest int that can be represented using IEEE 754 that is greater than 1.
- `units`. A [TimeUnit](#) value for unit for the time duration.

## unsignedInt

An unsigned 32-bit integer, a numerical value without a fractional component.

## WorkflowConfiguration

Defines the conditions under which a given workflow is executed on a device in response to a device interacting with the system. `WorkflowConfiguration` is a sub-type of [AbstractPersistentType](#) and contains the following elements:

- `messageType`. A [string](#) value for the type of the message, such as `Inform` or `GetRPCMethods`. It must be 1-256 characters in length.
- `eventCode`. A [string](#) value for the TR-069 event code. This element is optional. It must be 64 or fewer characters in length.
- `deviceClassifier`. A [DeviceClassifier](#) value for the device classifier reference. A workflow configuration only applies to a device if the device's classifiers contain the classifier specified in the workflow configuration.
- `workflowDefinitionName`. A [string](#) value for the name of the workflow definition referred to in this configuration.
- `responseWorkflow`. A [boolean](#) value for whether this workflow handles the response to the message type. Only true for built-in workflows. Workflow configuration associated with policy nodes should always set this to false.
- `minimumInterval`. A [long](#) value for the interval at which the workflow configuration is run.
- `runFirstIfIntervalIsNew`. A [boolean](#) value for whether to handle a miss in the workflow timings.
- `paramPair`. A [ParamValuePair](#) value for the workflow parameter and value pairs used to supply values in the event the associated workflow is parameterized. This element is optional, and there can be more than one specified.

## WorkflowDefinition

The definition of a workflow. `WorkflowDefinition` is a sub-type of [AbstractPersistentType](#) and contains the following elements:

- `name`. A [string](#) value for the name of the workflow. It must be 1-512 characters in length.
- `description`. A [string](#) value for the description of the workflow. It must be 512 or fewer characters in length and is optional.
- `workflowXml`. A [string](#) value for the XML that defines the workflow. It must be 1 or more characters in length.
- `active`. A [boolean](#) value for whether the workflow is active.
- `userVisible`. A [boolean](#) value for whether the workflow is exposed to users, for example, for manual enqueueing to devices.
- `parameter`. A [WorkflowParameter](#) value for the workflow's parameters. This element is optional, and there can be more than one specified.
- `tag`. A [string](#) value for the tag applied to the workflow definition, for classification purposes. This element is optional, and there can be more than one specified.
- `deviceClassifier`. A [DeviceClassifier](#) value for the device classifiers required of a device in order for this workflow definition to be applicable. This element is optional, and there can be more than one specified.

## WorkflowParameter

A parameter for a workflow. `WorkflowParameter` is a sub-type of [AbstractPersistentType](#) and contains the following elements:

- `actionName`. A [string](#) value for the action within the workflow to which the parameter applies. Null implies the global scope within the workflow. This element must be 256 or fewer characters in length and is optional.
- `parameterName`. A [string](#) value for the name of the parameter on the specified action within the workflow. This element must be 1-256 characters in length.
- `targetType`. A [string](#) value for the target type of the parameter, such as `java.lang.String`. This element must be 1-256 characters in length.
- `multiValued`. A [boolean](#) value for whether multiple values can be specified for the same parameter.
- `optional`. A [boolean](#) value for whether the parameter is optional.
- `valueType`. A [WorkflowParameterValue](#) value for the type of value associated with the parameter.

## WorkflowParameterAndValue

A pairing of parameter identifier and value associated with an enqueued workflow to provide parameter values to the workflow. `WorkflowParameterAndValue` contains the following elements:

- `actionName`. A [string](#) value for the action within the workflow to which the parameter applies. It must be 1-256 characters in length. This element is optional.
- `parameterName`. A [string](#) value for the name of the parameter on the specified action within the workflow. It must be 1-256 characters in length.
- `value`. An [AbstractWorkflowParameterValue](#) value for the parameter value. There can be more than one specified.

## WorkflowParameterValueType

A [string](#) value for the type of value which must be supplied for a given workflow parameter. Enumerated values include the following:

- `SIMPLE`. Consists of just a single string value. Workflow parameters requiring a simple value type use value instances of type [SimpleWorkflowParameterValue](#).
- `KEYVALUE`. Consists of a pairing of a string key and value. Workflow parameters requiring a key-value value type use value instances of type [KeyValueWorkflowParameterValue](#).

## CHAPTER 2

# Audit Management Service

The operations in the Audit Management Service are used to work with audit entries in the system.

The following operation is included in this service:

- [GetAuditEntries](#)

## GetAuditEntries

The `GetAuditEntries` operation retrieves the set of audit entries in the system, within a specified date range.

### Request Parameters

`GetAuditEntriesRequest` with the following elements:

- `from`. A [dateTime](#) value for the timestamp from which audit entries are retrieved (inclusive).
- `to`. A [dateTime](#) value for the timestamp to which audit entries are retrieved (inclusive). If null, the current time is implied. This element is optional.

### Response

`GetAuditEntriesResponse` with the following element:

- `auditEntry`. An [AuditEntry](#) value for the audit entries meeting the request criteria. This element is optional, and there can be more than one specified.

### Fault Type Codes

There are no fault codes defined for this operation.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0">
  <soapenv:Body>
    <v1:GetAuditEntriesRequest>
      <v1:from>2008-12-18T00:00:00.000Z</v1:from>
    </v1:GetAuditEntriesRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

### Sample Response

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns3:GetAuditEntriesResponse xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0" xmlns:ns10="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0" xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0" xmlns:ns5="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0" xmlns:ns6="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0" xmlns:ns7="http://twowire.com/dmc/apps/nbiws/manufacturermgmt/v1_0" xmlns:ns8="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0" xmlns:ns9="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0">
```

```

<ns3:auditEntry xsi:type="ns2:EntityCRUDAuditEntry" xmlns:xsi="http://
www.w3.org/2001/XMLSchema-instance">
  <ns2:id>1000</ns2:id>
  <ns2:user>unknown</ns2:user>
  <ns2:occurred>2009-03-05T12:25:42.778Z</ns2:occurred>
  <ns2:entityId>1000</ns2:entityId>
  <ns2:entityType>com.twowire.dmc.model.WorkflowDefinition</
ns2:entityType>
  <ns2:operation>UPDATE</ns2:operation>
</ns3:auditEntry>
<ns3:auditEntry xsi:type="ns2:EntityCRUDAuditEntry" xmlns:xsi="http://
www.w3.org/2001/XMLSchema-instance">
  <ns2:id>1001</ns2:id>
  <ns2:user>unknown</ns2:user>
  <ns2:occurred>2009-03-05T12:25:42.799Z</ns2:occurred>
  <ns2:entityId>1001</ns2:entityId>
  <ns2:entityType>com.twowire.dmc.model.WorkflowDefinition</
ns2:entityType>
  <ns2:operation>UPDATE</ns2:operation>
</ns3:auditEntry>
</ns3:GetAuditEntriesResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```





## CHAPTER 3

# Device Diagnostics Service

The operations in the Device Diagnostics Service enable TR-098 diagnostics to be run against managed devices. While the 2Wire vendor extension diagnostics return property object results for the diagnostics responses, the TR-098 diagnostics respond as follows:

1. CMS sends a [SetDeviceParameterValues](#) request to the device to configure the data model to initiate the diagnostics.
2. CMS “hangs up” and waits for the device to send another Inform containing the “8 DIAGNOSTICS COMPLETE” event code.
3. When that response is received, CMS sends a [GetDeviceParameterValues](#) request to the device to receive the contents of the data model sub-tree in which the diagnostics were configured (and where the results have been stored). This entire sub-tree is returned in the [DiagnosticsResponse](#) object.

The caller is then free to choose whatever data they want.

The following operations are included in this service:

- [DownloadDiagnostics](#)
- [GenericDiagnostics](#)
- [IPPingDiagnostics](#)
- [PHYDiagnostics](#)

---

**Note** `PHYDiagnostics` is a vendor-specific extension based on the Broadband Forum's PD-157 document.

---

- [TracerouteDiagnostics](#)
- [UploadDiagnostics](#)
- [WANATMF5LoopbackDiagnostics](#)
- [WANDSLDiagnostics](#)

## DownloadDiagnostics

The `DownloadDiagnostics` operation executes and retrieves the results of TR-098 download diagnostics on a single selected device.

### Request Parameters

`DownloadDiagnosticsRequest` with the following elements:

- `deviceSelector`. A [DeviceSelector](#) value for the device that will be acted upon.
- `interfaceParameterName`. A [string](#) value for the IP-layer interface over which the test is to be performed. The content is the full hierarchical parameter name of the interface. The value of this parameter must be either a valid interface or an empty string. It must be 256 or fewer characters in length. If an empty string is specified, the device will use the default routing interface.
- `downloadUrl`. A [string](#) value for the URL for the device to download. This parameter must be in the form of a valid HTTP or FTP URL. It must be 1-256 characters in length.
- `diffServCodePoint`. An [int](#) value for the DiffServ code point for marking packets transmitted in the test. The value must be greater than or equal to 0 and less than or equal to 63.
- `ethernetPriority`. An [int](#) value for the ethernet priority code for marking packets transmitted in the test. The value must be greater than or equal to 0 and less than or equal to 7.
- `timeout`. A [TimeWithUnits](#) value for the amount of time in which the device can respond with the requested data before the request is terminated and a `TimeoutException` fault is returned.

### Response

`DownloadDiagnosticsResponse` with a [DiagnosticsResponse](#) value.

### Fault Type Codes

`DeviceFaultedException`. A fault code indicating the device faulted during execution of a request (for example, if it returned an unexpected CWMP fault).

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

`TimeoutException`. A fault indicating a time-out occurred waiting for completion of a request.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
```

```

<soapenv:Body>
  <v1:DownloadDiagnosticsRequest>
    <v1:deviceSelector xsi:type="v11:SerialNumberAndOUIDeviceSelector">
      <v11:serialNumber>210812992372</v11:serialNumber>
      <v11:oui>00D09E</v11:oui>
    </v1:deviceSelector>
    <v1:interfaceParameterName></v1:interfaceParameterName>
    <v1:downloadUrl>http://www.2wire.com/index.html</v1:downloadUrl>
    <v1:diffServCodePoint>0</v1:diffServCodePoint>
    <v1:ethernetPriority>0</v1:ethernetPriority>
    <v1:timeout>
      <v11:value>30</v11:value>
      <v11:units>SECONDS</v11:units>
    </v1:timeout>
  </v1:DownloadDiagnosticsRequest>
</soapenv:Body>
</soapenv:Envelope>

```

## Sample Response

```

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns5:DownloadDiagnosticsResponse xmlns:ns5="http://twowire.com/dmc/apps/nbiws/devicediagnostics/v1_0" xmlns:ns10="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0" xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0" xmlns:ns6="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0" xmlns:ns7="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0" xmlns:ns8="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0" xmlns:ns9="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0">
      <ns5:parameterValue>
        <ns2:name>InternetGatewayDevice.DownloadDiagnostics.DiagnosticsState</ns2:name>
        <ns2:value>Complete</ns2:value>
      </ns5:parameterValue>
      <ns5:parameterValue>
        <ns2:name>InternetGatewayDevice.DownloadDiagnostics.Interface</ns2:name>
        <ns2:value></ns2:value>
      </ns5:parameterValue>
      <ns5:parameterValue>
        <ns2:name>InternetGatewayDevice.DownloadDiagnostics.DownloadURL</ns2:name>
        <ns2:value>http://www.2wire.com/index.html</ns2:value>
      </ns5:parameterValue>
      <ns5:parameterValue>
        <ns2:name>InternetGatewayDevice.DownloadDiagnostics.DSCP</ns2:name>
        <ns2:value>0</ns2:value>
      </ns5:parameterValue>
      <ns5:parameterValue>
        <ns2:name>InternetGatewayDevice.DownloadDiagnostics.EthernetPriority</ns2:name>
        <ns2:value>0</ns2:value>
      </ns5:parameterValue>
    </ns5:DownloadDiagnosticsResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

```

<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.DownloadDiagnostics.ROMTime</
  ns2:name>
  <ns2:value>2009-07-14T13:46:12.834628</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.DownloadDiagnostics.BOMTime</
  ns2:name>
  <ns2:value>2009-07-14T13:46:13.016743</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.DownloadDiagnostics.EOMTime</
  ns2:name>
  <ns2:value>2009-07-14T13:46:13.178673</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.DownloadDiagnostics.TestBytesRecei
  ved</ns2:name>
  <ns2:value>28743</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.DownloadDiagnostics.TotalBytesRecei
  ved</ns2:name>
  <ns2:value>29872</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.DownloadDiagnostics.TCPOpenRequest
  Time</ns2:name>
  <ns2:value>2009-07-14T13:46:12.833211</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.DownloadDiagnostics.TCPOpenRespon
  seTime</ns2:name>
  <ns2:value>2009-07-14T13:46:12.833906</ns2:value>
</ns5:parameterValue>
</ns5:DownloadDiagnosticsResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

## GenericDiagnostics

The `GenericDiagnostics` operation executes and retrieves the results of a generic TR-098 diagnostics execution on a single selected device.

### Request Parameters

`GenericDiagnosticsRequest` with the following elements:

- `deviceSelector`. A [DeviceSelector](#) value for the device that will be acted upon.
- `parameterValue`. A [NameValuePair](#) value for the device data model parameter paths and associated values containing diagnostic parameters and configuration. The parameter values must contain the special token `DIAGNOSTICS_NODE` for which the value is the parameter path in the data model under which the diagnostics are located.

It is expected that the `DiagnosticsState` attribute is located under this location, which is set to `Requested` by the diagnostic workflow to initiate diagnostic execution on the device. If a different attribute is responsible for starting the diagnostics (as in the case of WAN DSL diagnostics), the map may contain the special token `DIAGNOSTICS_TRIGGER` for which the value is the attribute name in the data model responsible for triggering diagnostics execution when set to `Requested`.

There can be more than one specified.

- `timeout`. A [TimeWithUnits](#) value for the amount of time in which the device can respond with the requested data before the request is terminated and a `TimeoutException` fault is returned.

### Response

`GenericDiagnosticsResponse` with a [DiagnosticsResponse](#) value.

### Fault Type Codes

`DeviceFaultedException`. A fault code indicating the device faulted during execution of a request (for example, if it returned an unexpected CWMP fault).

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

`TimeoutException`. A fault indicating a time-out occurred waiting for completion of a request.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/devicediagnostics/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
```

```

<soapenv:Body>
  <v1:GenericDiagnosticsRequest>
    <v1:deviceSelector xsi:type="v11:SerialNumberAndOUIDeviceSelector">
      <v11:serialNumber>210812992372</v11:serialNumber>
      <v11:oui>00D09E</v11:oui>
    </v1:deviceSelector>
    <v1:parameterValue>
      <v11:name>DIAGNOSTICS_NODE</v11:name>
      <v11:value>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig.3.PHYDiagnostics</v11:value>
    </v1:parameterValue>
    <v1:parameterValue>
      <v11:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig.3.PHYDiagnostics.X_00D09E_SaveResultAsBaseline</v11:name>
      <v11:value>0</v11:value>
    </v1:parameterValue>
    <v1:parameterValue>
      <v11:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig.3.PHYDiagnostics.X_00D09E_ReadFromBaseline</v11:name>
      <v11:value>1</v11:value>
    </v1:parameterValue>
    <v1:timeout>
      <v11:value>60</v11:value>
      <v11:units>SECONDS</v11:units>
    </v1:timeout>
  </v1:GenericDiagnosticsRequest>
</soapenv:Body>
</soapenv:Envelope>

```

## Sample Response

```

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns5:GenericDiagnosticsResponse xmlns:ns5="http://twowire.com/dmc/apps/nbiws/devicediagnostics/v1_0" xmlns:ns10="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0" xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0" xmlns:ns6="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0" xmlns:ns7="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0" xmlns:ns8="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0" xmlns:ns9="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0">
      <ns5:parameterValue>
        <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig.3.PHYDiagnostics.Result.2.SrcMACAddress</ns2:name>
        <ns2:value>00:1d:5a:5f:f8:68</ns2:value>
      </ns5:parameterValue>
      <ns5:parameterValue>
        <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig.3.PHYDiagnostics.X_00D09E_ReadFromBaseline</ns2:name>
        <ns2:value>>true</ns2:value>
      </ns5:parameterValue>
    </ns5:GenericDiagnosticsResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

```

<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
    .3.PHYDiagnostics.Result.1.PHYRate</ns2:name>
  <ns2:value>144</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
    .3.PHYDiagnostics.Result.2.SNR</ns2:name>
  <ns2:value>449</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
    .3.PHYDiagnostics.Result.1.SrcMACAddress</ns2:name>
  <ns2:value>00:1d:5a:60:00:91</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
    .3.PHYDiagnostics.Result.1.SNR</ns2:name>
  <ns2:value>450</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
    .3.PHYDiagnostics.Result.2.PHYRate</ns2:name>
  <ns2:value>144</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
    .3.PHYDiagnostics.X_00D09E_CollectTime</ns2:name>
  <ns2:value>2009-04-16T12:23:53Z</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
    .3.PHYDiagnostics.X_00D09E_SaveResultAsBaseline</ns2:name>
  <ns2:value>>false</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
    .3.PHYDiagnostics.DiagnosticsState</ns2:name>
  <ns2:value>Complete</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
    .3.PHYDiagnostics.Result.2.PacketsReceived</ns2:name>
  <ns2:value>1000</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
    .3.PHYDiagnostics.Result.1.X_00D09E_ReceivePowerLevel</ns2:name>
  <ns2:value>-6.6</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
    .3.PHYDiagnostics.Result.NumberOfEntries</ns2:name>
  <ns2:value>2</ns2:value>
</ns5:parameterValue>

```

```

<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
    .3.PHYDiagnostics.Result.1.DestMACAddress</ns2:name>
  <ns2:value>00:1d:5a:5f:f8:68</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
    .3.PHYDiagnostics.Result.2.DestMACAddress</ns2:name>
  <ns2:value>00:1d:5a:60:00:91</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
    .3.PHYDiagnostics.Result.2.X_00D09E_ReceivePowerLevel</ns2:name>
  <ns2:value>-6.7</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
    .3.PHYDiagnostics.Result.1.PacketsReceived</ns2:name>
  <ns2:value>1000</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
    .3.PHYDiagnostics.NumPacketsInBurst</ns2:name>
  <ns2:value>1000</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
    .3.PHYDiagnostics.TestPacketPayloadLength</ns2:name>
  <ns2:value>0</ns2:value>
</ns5:parameterValue>
</ns5:GenericDiagnosticsResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```



## IPPingDiagnostics

The `IPPingDiagnostics` operation executes and retrieves the results of TR-098 IP ping diagnostics on a single selected device.

### Request Parameters

`IPPingDiagnosticsRequest` with the following elements:

- `deviceSelector`. A [DeviceSelector](#) value for the device that will be acted upon.
- `interfaceParameterName`. A [string](#) value for the WAN or LAN IP-layer interface over which the test is to be performed. This identifies the source IP address to use when performing the test. The content is the full hierarchical parameter name of the interface. The following is a WAN interface example:

```
InternetGatewayDevice.WANDevice.1.WANConnectionDevice.2.WANPPPConnection.1
```

The following is a LAN interface example:

```
InternetGatewayDevice.LANDevice.1.LANHostConfigManagement.IPInterface.1
```

The value of this parameter must be either a valid interface or an empty string. It must be 256 or fewer characters in length. If an empty string is specified, the device will use the interface as directed by its routing policy (Forwarding table entries) to determine the appropriate interface.

- `hostOrAddress`. A [string](#) value for the host name or IP address of the host to ping. It must be 1-256 characters in length.
- `numberOfRepetitions`. A [long](#) value for the number of repetitions of the ping test to perform before reporting the results. The value must be greater than or equal to 1.
- `timeoutMillis`. A [long](#) value for the time-out in milliseconds for the ping test, as executed on the device. Note that this value should be less than the time-out specified for the NBI and it must be greater than or equal to 1.
- `dataBlockSize`. An [int](#) value for the size of the data block in bytes to be sent for each ping. This value must be greater than or equal to 1 and less than or equal to 65535.
- `diffServCodePoint`. An [int](#) value for the DiffServ codepoint to be used for the test packets. This value must be greater than or equal to 0 and less than or equal to 63.
- `timeout`. A [TimeWithUnits](#) value for the amount of time in which the device can respond with the requested data before the request is terminated and a `TimeoutException` fault is returned.

### Response

`IPPingDiagnosticsResponse` with a [DiagnosticsResponse](#) value.

### Fault Type Codes

`DeviceFaultedException`. A fault code indicating the device faulted during execution of a request (for example, if it returned an unexpected CWMP fault).

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

`TimeoutException`. A fault indicating a time-out occurred waiting for completion of a request.

## Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/devicediagnostics/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:IPPingDiagnosticsRequest>
      <v1:deviceSelector xsi:type="v11:SerialNumberAndOUIDeviceSelector">
        <v11:serialNumber>136440076944</v11:serialNumber>
        <v11:oui>000FCC</v11:oui>
      </v1:deviceSelector>
      <v1:interfaceParameterName>InternetGatewayDevice.WANDevice.1.WANConnec
tionDevice.1.WANIPConnection.1</v1:interfaceParameterName>
      <v1:hostOrAddress>www.2wire.com</v1:hostOrAddress>
      <v1:numberOfRepetitions>3</v1:numberOfRepetitions>
      <v1:timeoutMillis>5000</v1:timeoutMillis>
      <v1:dataBlockSize>1024</v1:dataBlockSize>
      <v1:diffServCodePoint>0</v1:diffServCodePoint>
      <v1:timeout>
        <v11:value>60</v11:value>
        <v11:units>SECONDS</v11:units>
      </v1:timeout>
    </v1:IPPingDiagnosticsRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

## Sample Response

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns5:IPPingDiagnosticsResponse xmlns:ns5="http://twowire.com/dmc/apps/
nbiws/devicediagnostics/v1_0" xmlns:ns10="http://twowire.com/dmc/apps/
nbiws/workflowmgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/
base/v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0"
xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0"
xmlns:ns6="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
xmlns:ns7="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0"
xmlns:ns8="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0"
xmlns:ns9="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0">
```

```

<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.IPPingDiagnostics.MinimumResponseTime</ns2:name>
  <ns2:value>0</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.IPPingDiagnostics.Host</ns2:name>
  <ns2:value>www.2wire.com</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.IPPingDiagnostics.NumberOfRepetitions</ns2:name>
  <ns2:value>3</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.IPPingDiagnostics.SuccessCount</ns2:name>
  <ns2:value>0</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.IPPingDiagnostics.FailureCount</ns2:name>
  <ns2:value>3</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.IPPingDiagnostics.MaximumResponseTime</ns2:name>
  <ns2:value>0</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.IPPingDiagnostics.DiagnosticsState</ns2:name>
  <ns2:value>Complete</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.IPPingDiagnostics.Interface</ns2:name>
  <ns2:value>InternetGatewayDevice.WANDevice.1.WANConnectionDevice.1.WANIPConnection.1</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.IPPingDiagnostics.AverageResponseTime</ns2:name>
  <ns2:value>0</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.IPPingDiagnostics.DSCP</ns2:name>
  <ns2:value>0</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.IPPingDiagnostics.DataBlockSize</ns2:name>
  <ns2:value>1024</ns2:value>
</ns5:parameterValue>

```

```
<ns5:parameterValue>  
  <ns2:name>InternetGatewayDevice.IPPingDiagnostics.Timeout</  
  ns2:name>  
  <ns2:value>5000</ns2:value>  
</ns5:parameterValue>  
</ns5:IPPingDiagnosticsResponse>  
</SOAP-ENV:Body>  
</SOAP-ENV:Envelope>
```

## PHYDiagnostics

The `PHYDiagnostics` operation executes and retrieves the results of HPNA PHY diagnostics on a single selected device.

### Request Parameters

`PHYDiagnosticsRequest` with the following elements:

- `deviceSelector`. A `DeviceSelector` value for the device that will be acted upon.
- `lanDeviceInstance`. An `int` value for the LAN device instance within the data model on which diagnostics will be executed.
- `lanHPNAInterfaceInstance`. An `int` value for the LAN HPNA interface instance within the data model on which diagnostics will be executed.
- `extensionProperty`. A `NameValuePair` value for the additional vendor-specific properties to be set in the data model prior to diagnostics execution. This element is optional, and there can be more than one specified.
- `timeout`. A `TimeWithUnits` value for the amount of time in which the device can respond with the requested data before the request is terminated and a `TimeoutException` fault is returned.

### Response

`PHYDiagnosticsResponse` with a `DiagnosticsResponse` value.

### Fault Type Codes

`DeviceFaultedException`. A fault code indicating the device faulted during execution of a request (for example, if it returned an unexpected CWMP fault).

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

`TimeoutException`. A fault indicating a time-out occurred waiting for completion of a request.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/devicediagnostics/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:PHYDiagnosticsRequest>
```

```

<v1:deviceSelector xsi:type="v11:SerialNumberAndOUIDeviceSelector">
  <v11:serialNumber>210812992372</v11:serialNumber>
  <v11:oui>00D09E</v11:oui>
</v1:deviceSelector>
<v1:lanDeviceInstance>1</v1:lanDeviceInstance>
<v1:lanHPNAInterfaceInstance>3</v1:lanHPNAInterfaceInstance>
<v1:extensionProperty>
  <v11:name>X_00D09E_SaveResultAsBaseline</v11:name>
  <v11:value>0</v11:value>
</v1:extensionProperty>
<v1:extensionProperty>
  <v11:name>X_00D09E_ReadFromBaseline</v11:name>
  <v11:value>0</v11:value>
</v1:extensionProperty>
<v1:timeout>
  <v11:value>60</v11:value>
  <v11:units>SECONDS</v11:units>
</v1:timeout>
</v1:PHYDiagnosticsRequest>
</soapenv:Body>
</soapenv:Envelope>

```

## Sample Response

```

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns5:PHYDiagnosticsResponse xmlns:ns5="http://twowire.com/dmc/apps/nbiws/
    devicediagnostics/v1_0" xmlns:ns10="http://twowire.com/dmc/apps/nbiws/
    workflowmgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/
    v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0"
    xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0"
    xmlns:ns6="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
    xmlns:ns7="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0"
    xmlns:ns8="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0"
    xmlns:ns9="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0">
      <ns5:parameterValue>
        <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
        .3.PHYDiagnostics.Result.2.SrcMACAddress</ns2:name>
        <ns2:value>00:1d:5a:5f:f8:68</ns2:value>
      </ns5:parameterValue>
      <ns5:parameterValue>
        <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
        .3.PHYDiagnostics.X_00D09E_ReadFromBaseline</ns2:name>
        <ns2:value>>false</ns2:value>
      </ns5:parameterValue>
      <ns5:parameterValue>
        <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
        .3.PHYDiagnostics.Result.1.PHYRate</ns2:name>
        <ns2:value>144</ns2:value>
      </ns5:parameterValue>
      <ns5:parameterValue>
        <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
        .3.PHYDiagnostics.Result.2.SNR</ns2:name>
        <ns2:value>447</ns2:value>
      </ns5:parameterValue>
    </SOAP-ENV:Body>
  </SOAP-ENV:Envelope>

```

```

<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
    .3.PHYDiagnostics.Result.1.SrcMACAddress</ns2:name>
  <ns2:value>00:1d:5a:60:00:91</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
    .3.PHYDiagnostics.Result.1.SNR</ns2:name>
  <ns2:value>446</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
    .3.PHYDiagnostics.Result.2.PHYRate</ns2:name>
  <ns2:value>144</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
    .3.PHYDiagnostics.X_00D09E_CollectTime</ns2:name>
  <ns2:value>2009-04-16T12:10:23Z</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
    .3.PHYDiagnostics.X_00D09E_SaveResultAsBaseline</ns2:name>
  <ns2:value>>false</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
    .3.PHYDiagnostics.DiagnosticsState</ns2:name>
  <ns2:value>Complete</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
    .3.PHYDiagnostics.Result.2.PacketsReceived</ns2:name>
  <ns2:value>1000</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
    .3.PHYDiagnostics.Result.1.X_00D09E_ReceivePowerLevel</ns2:name>
  <ns2:value>-6.7</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
    .3.PHYDiagnostics.ResultNumberOfEntries</ns2:name>
  <ns2:value>2</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
    .3.PHYDiagnostics.Result.1.DestMACAddress</ns2:name>
  <ns2:value>00:1d:5a:5f:f8:68</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
    .3.PHYDiagnostics.Result.2.DestMACAddress</ns2:name>
  <ns2:value>00:1d:5a:60:00:91</ns2:value>
</ns5:parameterValue>

```

```
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
    .3.PHYDiagnostics.Result.2.X_00D09E_ReceivePowerLevel</ns2:name>
  <ns2:value>-6.8</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
    .3.PHYDiagnostics.Result.1.PacketsReceived</ns2:name>
  <ns2:value>1000</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
    .3.PHYDiagnostics.NumPacketsInBurst</ns2:name>
  <ns2:value>1000</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.LANDevice.1.LANHPNAInterfaceConfig
    .3.PHYDiagnostics.TestPacketPayloadLength</ns2:name>
  <ns2:value>0</ns2:value>
</ns5:parameterValue>
</ns5:PHYDiagnosticsResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```



## TracerouteDiagnostics

The `TracerouteDiagnostics` operation executes and retrieves the results of TR-098 traceroute diagnostics on a single selected device.

### Request Parameters

`TracerouteDiagnosticsRequest` with the following elements:

- `deviceSelector`. A [DeviceSelector](#) value for the device that will be acted upon.
- `interfaceParameterName`. A [string](#) value for the WAN or LAN IP-layer interface over which the test is to be performed. This identifies the source IP address to use when performing the test. The content is the full hierarchical parameter name of the interface. The following is a WAN interface example:

```
InternetGatewayDevice.WANDevice.1.WANConnectionDevice.2.WANPPPPConn  
ection.1
```

The following is a LAN interface example:

```
InternetGatewayDevice.LANDevice.1.LAN-  
HostConfigManagement.IPInterface.1
```

It must be 1-256 characters in length.

- `hostOrAddress`. A [string](#) value for the host name or IP address of the host to reach or to which to trace the route. It must be 1-256 characters in length.
- `numberOfRepetitions`. A [long](#) value for the number of tries per hop. This value must be greater than or equal to 1 and less than or equal to 3.
- `timeoutMillis`. A [long](#) value for the time-out in milliseconds for the trace route test. Note that this value should be less than the time-out specified for the NBI and it must be greater then or equal to 1.
- `dataBlockSize`. An [int](#) value for the size of the data block in bytes to be sent for each trace route. This value must be greater than or equal to 1 and less than or equal to 65535.
- `maxHopCount`. An [int](#) value for the maximum number of hops used in outgoing probe packets (max TTL). This value must be greater than or equal to 1 and less than or equal to 64.
- `diffServCodePoint`. An [int](#) value for the DiffServ codepoint to be used for the test packets. This value must be greater than or equal to 0 and less than or equal to 63.
- `timeout`. A [TimeWithUnits](#) value for the amount of time in which the device can respond with the requested data before the request is terminated and a `TimeoutException` fault is returned.

### Response

`TracerouteDiagnosticsResponse` with a [DiagnosticsResponse](#) value.

## Fault Type Codes

`DeviceFaultedException`. A fault code indicating the device faulted during execution of a request (for example, if it returned an unexpected CWMP fault).

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

`TimeoutException`. A fault indicating a time-out occurred waiting for completion of a request.

## Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  <soapenv:Body>
    <v1:TracerouteDiagnosticsRequest>
      <v1:deviceSelector xsi:type="v11:SerialNumberAndOUIDeviceSelector">
        <v11:serialNumber>136440076944</v11:serialNumber>
        <v11:oui>000FCC</v11:oui>
      </v1:deviceSelector>
      <v1:interfaceParameterName>InternetGatewayDevice.WANDevice.1.WANConnec
tionDevice.1.WANIPConnection.1</v1:interfaceParameterName>
      <v1:hostOrAddress>www.2wire.com</v1:hostOrAddress>
      <v1:numberOfRepetitions>3</v1:numberOfRepetitions>
      <v1:timeoutMillis>5000</v1:timeoutMillis>
      <v1:dataBlockSize>38</v1:dataBlockSize>
      <v1:maxHopCount>30</v1:maxHopCount>
      <v1:diffServCodePoint>0</v1:diffServCodePoint>
      <v1:timeout>
        <v11:value>60</v11:value>
        <v11:units>SECONDS</v11:units>
      </v1:timeout>
    </v1:TracerouteDiagnosticsRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

## Sample Response

**Note** The following is an excerpt from the response.

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns5:TracerouteDiagnosticsResponse xmlns:ns5="http://twowire.com/dmc/
apps/nbiws/devicediagnostics/v1_0" xmlns:ns10="http://twowire.com/dmc/
apps/nbiws/workflowmgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/
nbiws/base/v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/
v1_0" xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/
v1_0" xmlns:ns6="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
xmlns:ns7="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0">
```

```

xmlns:ns8="http://twowire.com/dmc/apps/nbiws/scheduledworkflomgmt/v1_0"
xmlns:ns9="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0"
  <ns5:parameterValue>
    <ns2:name>InternetGatewayDevice.TraceRouteDiagnostics.DiagnosticsS
tate</ns2:name>
    <ns2:value>Complete</ns2:value>
  </ns5:parameterValue>
  <ns5:parameterValue>
    <ns2:name>InternetGatewayDevice.TraceRouteDiagnostics.Interface</
ns2:name>
    <ns2:value>InternetGatewayDevice.WANDevice.1.WANConnectionDevice.1
.WANIPConnection.1</ns2:value>
  </ns5:parameterValue>
  <ns5:parameterValue>
    <ns2:name>InternetGatewayDevice.TraceRouteDiagnostics.Host</
ns2:name>
    <ns2:value>www.2wire.com</ns2:value>
  </ns5:parameterValue>
  <ns5:parameterValue>
    <ns2:name>InternetGatewayDevice.TraceRouteDiagnostics.NumberOfTrie
s</ns2:name>
    <ns2:value>3</ns2:value>
  </ns5:parameterValue>
  <ns5:parameterValue>
    <ns2:name>InternetGatewayDevice.TraceRouteDiagnostics.Timeout</
ns2:name>
    <ns2:value>5000</ns2:value>
  </ns5:parameterValue>
  <ns5:parameterValue>
    <ns2:name>InternetGatewayDevice.TraceRouteDiagnostics.DataBlockSiz
e</ns2:name>
    <ns2:value>38</ns2:value>
  </ns5:parameterValue>
  <ns5:parameterValue>
    <ns2:name>InternetGatewayDevice.TraceRouteDiagnostics.DSCP</
ns2:name>
    <ns2:value>0</ns2:value>
  </ns5:parameterValue>
  <ns5:parameterValue>
    <ns2:name>InternetGatewayDevice.TraceRouteDiagnostics.MaxHopCount<
/ns2:name>
    <ns2:value>30</ns2:value>
  </ns5:parameterValue>
  <ns5:parameterValue>
    <ns2:name>InternetGatewayDevice.TraceRouteDiagnostics.ResponseTime
</ns2:name>
    <ns2:value>68</ns2:value>
  </ns5:parameterValue>
  <ns5:parameterValue>
    <ns2:name>InternetGatewayDevice.TraceRouteDiagnostics.RouteHopsNum
berOfEntries</ns2:name>
    <ns2:value>10</ns2:value>
  </ns5:parameterValue>

```

```

<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.TraceRouteDiagnostics.RouteHops.1.
  HopHost</ns2:name>
  <ns2:value>10.37.110.24</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.TraceRouteDiagnostics.RouteHops.1.
  HopHostAddress</ns2:name>
  <ns2:value>10.37.110.24</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.TraceRouteDiagnostics.RouteHops.1.
  HopErrorCode</ns2:name>
  <ns2:value>0</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.TraceRouteDiagnostics.RouteHops.1.
  HopRTTimes</ns2:name>
  <ns2:value>426,900,1134</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.TraceRouteDiagnostics.RouteHops.2.
  HopHost</ns2:name>
  <ns2:value>10.37.0.21</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.TraceRouteDiagnostics.RouteHops.2.
  HopHostAddress</ns2:name>
  <ns2:value>10.37.0.21</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.TraceRouteDiagnostics.RouteHops.2.
  HopErrorCode</ns2:name>
  <ns2:value>0</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.TraceRouteDiagnostics.RouteHops.2.
  HopRTTimes</ns2:name>
  <ns2:value>472,752,1034</ns2:value>
</ns5:parameterValue>
  ...
</ns5:TracerouteDiagnosticsResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

## UploadDiagnostics

The `UploadDiagnostics` operation executes and retrieves the results of TR-098 upload diagnostics on a single selected device.

### Request Parameters

`UploadDiagnosticsRequest` with the following elements:

- `deviceSelector`. A [DeviceSelector](#) value for the device that will be acted upon.
- `interfaceParameterName`. A [string](#) value for the IP-layer interface over which the test is to be performed. The content is the full hierarchical parameter name of the interface. The value of this parameter must be either a valid interface or an empty string. It must be 256 or fewer characters in length. If an empty string is specified, the device will use the default routing interface.
- `uploadUrl`. A [string](#) value for the URL for which the device to Upload. This parameter must be in the form of a valid HTTP or FTP URL. It must be 1-256 characters in length.
- `diffServCodePoint`. An [int](#) value for the DiffServ code point for marking packets transmitted in the test. This value must be greater than or equal to 0 and less than or equal to 63.
- `ethernetPriority`. An [int](#) value for the ethernet priority code for marking packets transmitted in the test (if applicable). This value must be greater than or equal to 0 and less than or equal to 7.
- `testFileLength`. A [long](#) value for the size of the file (in bytes) to be uploaded to the server.
- `timeout`. A [TimeWithUnits](#) value for the amount of time in which the device can respond with the requested data before the request is terminated and a `TimeoutException` fault is returned.

### Response

`UploadDiagnosticsResponse` with a [DiagnosticsResponse](#) value.

### Fault Type Codes

`DeviceFaultedException`. A fault code indicating the device faulted during execution of a request (for example, if it returned an unexpected CWMP fault).

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

`TimeoutException`. A fault indicating a time-out occurred waiting for completion of a request.

## Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  <soapenv:Body>
    <v1:UploadDiagnosticsRequest>
      <v1:deviceSelector xsi:type="v11:SerialNumberAndOUIDeviceSelector">
        <v11:serialNumber>210812992372</v11:serialNumber>
        <v11:oui>00D09E</v11:oui>
      </v1:deviceSelector>
      <v1:interfaceParameterName></v1:interfaceParameterName>
      <v1:uploadUrl>http://www.mycompany.com/incoming</v1:uploadUrl>
      <v1:diffServCodePoint>0</v1:diffServCodePoint>
      <v1:ethernetPriority>0</v1:ethernetPriority>
      <v1:testFileLength>2048</v1:testFileLength>
      <v1:timeout>
        <v11:value>30</v11:value>
        <v11:units>SECONDS</v11:units>
      </v1:timeout>
    </v1:UploadDiagnosticsRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

## Sample Response

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns5:UploadDiagnosticsResponse xmlns:ns5="http://twowire.com/dmc/apps/nbiws/devicediagnostics/v1_0" xmlns:ns10="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0" xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0" xmlns:ns6="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0" xmlns:ns7="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0" xmlns:ns8="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0" xmlns:ns9="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0">
      <ns5:parameterValue>
        <ns2:name>InternetGatewayDevice.UploadDiagnostics.DiagnosticsState</ns2:name>
        <ns2:value>Complete</ns2:value>
      </ns5:parameterValue>
      <ns5:parameterValue>
        <ns2:name>InternetGatewayDevice.UploadDiagnostics.Interface</ns2:name>
        <ns2:value></ns2:value>
      </ns5:parameterValue>
      <ns5:parameterValue>
        <ns2:name>InternetGatewayDevice.UploadDiagnostics.UploadURL</ns2:name>
        <ns2:value>http://www.mycompany.com/incoming</ns2:value>
      </ns5:parameterValue>
      <ns5:parameterValue>
        <ns2:name>InternetGatewayDevice.UploadDiagnostics.DSCP</ns2:name>
        <ns2:value>0</ns2:value>
      </ns5:parameterValue>
    </ns5:UploadDiagnosticsResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

```

<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.UploadDiagnostics.EthernetPriority
  </ns2:name>
  <ns2:value>0</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.UploadDiagnostics.TestFileLength</
  ns2:name>
  <ns2:value>2048</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.UploadDiagnostics.ROMTime</
  ns2:name>
  <ns2:value>2009-07-14T13:46:12.834628</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.UploadDiagnostics.BOMTime</
  ns2:name>
  <ns2:value>2009-07-14T13:46:13.016743</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.UploadDiagnostics.EOMTime</
  ns2:name>
  <ns2:value>2009-07-14T13:46:13.178673</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.UploadDiagnostics.TotalBytesSent</
  ns2:name>
  <ns2:value>6892</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.UploadDiagnostics.TCPOpenRequestTi
  me</ns2:name>
  <ns2:value>2009-07-14T13:46:12.833211</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.UploadDiagnostics.TCPOpenResponseT
  ime</ns2:name>
  <ns2:value>2009-07-14T13:46:12.833906</ns2:value>
</ns5:parameterValue>
</ns5:UploadDiagnosticsResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

## WANATMF5LoopbackDiagnostics

The `WANATMF5LoopbackDiagnostics` operation executes and retrieves the results of TR-098 WAN ATM F5 loopback diagnostics on a single selected device.

### Request Parameters

`WANATMF5LoopbackDiagnosticsRequest` with the following elements:

- `deviceSelector`. A [DeviceSelector](#) value for the device that will be acted upon.
- `wanDeviceInstance`. An `int` value for the WAN device instance within the data model on which diagnostics will be executed.
- `wanConnectionDeviceInstance`. An `int` value for the WAN connection device instance within the data model on which diagnostics will be executed.
- `numberOfRepetitions`. An `int` value for the number of repetitions of the ping test to perform before reporting results. The minimum value is the smallest int that can be represented using IEEE 754 that is greater than or equal to 1.
- `diagnosticTimeoutMillis`. A `long` value for the time-out in milliseconds for the ping test on the device. This value should be less than the time-out specified for the NBI. The minimum value is the smallest int that can be represented using IEEE 754 that is greater than or equal to 1.
- `timeout`. A [TimeWithUnits](#) value for the amount of time in which the device can respond with the requested data before the request is terminated and a `TimeoutException` fault is returned.

### Response

`WANATMF5LoopbackDiagnosticsResponse` with a [DiagnosticsResponse](#) value.

### Fault Type Codes

`DeviceFaultedException`. A fault code indicating the device faulted during execution of a request (for example, if it returned an unexpected CWMP fault).

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

`TimeoutException`. A fault indicating a time-out occurred waiting for completion of a request.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  <soapenv:Body>
```



```

<v1:WANATMF5LoopbackDiagnosticsRequest>
  <v1:deviceSelector xsi:type="v11:SerialNumberAndOUIDeviceSelector">
    <v11:serialNumber>210812992372</v11:serialNumber>
    <v11:oui>00D09E</v11:oui>
  </v1:deviceSelector>
  <v1:wanDeviceInstance>1</v1:wanDeviceInstance>
  <v1:wanConnectionDeviceInstance>1</v1:wanConnectionDeviceInstance>
  <v1:numberOfRepetitions>2</v1:numberOfRepetitions>
  <v1:diagnosticTimeoutMillis>4000</v1:diagnosticTimeoutMillis>
  <v1:timeout>
    <v11:value>30</v11:value>
    <v11:units>SECONDS</v11:units>
  </v1:timeout>
</v1:WANATMF5LoopbackDiagnosticsRequest>
</soapenv:Body>
</soapenv:Envelope>

```

## Sample Response

```

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns5:WANATMF5LoopbackDiagnosticsResponse xmlns:ns5="http://twowire.com/dmc/apps/nbiws/devicediagnostics/v1_0" xmlns:ns10="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0" xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0" xmlns:ns6="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0" xmlns:ns7="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0" xmlns:ns8="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0" xmlns:ns9="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0">
      <ns5:parameterValue>
        <ns2:name>InternetGatewayDevice.WANDevice.1.WANConnectionDevice.1.WANATMF5LoopbackDiagnostics.DiagnosticsState</ns2:name>
        <ns2:value>Complete</ns2:value>
      </ns5:parameterValue>
      <ns5:parameterValue>
        <ns2:name>InternetGatewayDevice.WANDevice.1.WANConnectionDevice.1.WANATMF5LoopbackDiagnostics.SuccessCount</ns2:name>
        <ns2:value>2</ns2:value>
      </ns5:parameterValue>
      <ns5:parameterValue>
        <ns2:name>InternetGatewayDevice.WANDevice.1.WANConnectionDevice.1.WANATMF5LoopbackDiagnostics.FailureCount</ns2:name>
        <ns2:value>0</ns2:value>
      </ns5:parameterValue>
      <ns5:parameterValue>
        <ns2:name>InternetGatewayDevice.WANDevice.1.WANConnectionDevice.1.WANATMF5LoopbackDiagnostics.AverageResponseTime</ns2:name>
        <ns2:value>24</ns2:value>
      </ns5:parameterValue>
      <ns5:parameterValue>
        <ns2:name>InternetGatewayDevice.WANDevice.1.WANConnectionDevice.1.WANATMF5LoopbackDiagnostics.MinimumResponseTime</ns2:name>
        <ns2:value>22</ns2:value>
      </ns5:parameterValue>
    </ns5:WANATMF5LoopbackDiagnosticsResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

```
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.WANDevice.1.WANConnectionDevice.1.
    WANATMF5LoopbackDiagnostics.MaximumResponseTime</ns2:name>
  <ns2:value>26</ns2:value>
</ns5:parameterValue>
</ns5:WANATMF5LoopbackDiagnosticsResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

## WANDSLDiagnostics

The `WANDSLDiagnostics` operation executes and retrieves the results of TR-098 WAN DSL diagnostics on a single selected device.

### Request Parameters

`WANDSLDiagnosticsRequest` with the following elements:

- `deviceSelector`. A [DeviceSelector](#) value for the device that will be acted upon.
- `wanDeviceInstance`. An `int` value for the WAN device instance within the data model on which diagnostics will be executed.
- `timeout`. A [TimeWithUnits](#) value for the amount of time in which the device can respond with the requested data before the request is terminated and a `TimeoutException` fault is returned.

### Response

`WANDSLDiagnosticsResponse` with a [DiagnosticsResponse](#) value.

### Fault Type Codes

`DeviceFaultedException`. A fault code indicating the device faulted during execution of a request (for example, if it returned an unexpected CWMP fault).

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

`TimeoutException`. A fault indicating a time-out occurred waiting for completion of a request.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  <soapenv:Body>
    <v1:WANDSLDiagnosticsRequest>
      <v1:deviceSelector xsi:type="v11:SerialNumberAndOUIDeviceSelector">
        <v11:serialNumber>210812992372</v11:serialNumber>
        <v11:oui>00D09E</v11:oui>
      </v1:deviceSelector>
      <v1:wandDeviceInstance>1</v1:wandDeviceInstance>
      <v1:timeout>
        <v11:value>30</v11:value>
        <v11:units>SECONDS</v11:units>
      </v1:timeout>
    </v1:WANDSLDiagnosticsRequest>
```

```

</soapenv:Body>
</soapenv:Envelope>

```

## Sample Response

**Note** The following is an excerpt from the response.

```

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns5:WANDSLDiagnosticsResponse xmlns:ns5="http://twowire.com/dmc/apps/
nbiws/devicediagnostics/v1_0" xmlns:ns10="http://twowire.com/dmc/apps/
nbiws/workflowmgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/
base/v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0"
xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0"
xmlns:ns6="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
xmlns:ns7="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0"
xmlns:ns8="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0"
xmlns:ns9="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0">
      <ns5:parameterValue>
        <ns2:name>InternetGatewayDevice.WANDevice.1.WANDSLDiagnostics.ACTP
SDds</ns2:name>
        <ns2:value>-568</ns2:value>
      </ns5:parameterValue>
      <ns5:parameterValue>
        <ns2:name>InternetGatewayDevice.WANDevice.1.WANDSLDiagnostics.ACTP
SDus</ns2:name>
        <ns2:value>-711</ns2:value>
      </ns5:parameterValue>
      <ns5:parameterValue>
        <ns2:name>InternetGatewayDevice.WANDevice.1.WANDSLDiagnostics.ACTA
TPds</ns2:name>
        <ns2:value>113</ns2:value>
      </ns5:parameterValue>
      <ns5:parameterValue>
        <ns2:name>InternetGatewayDevice.WANDevice.1.WANDSLDiagnostics.ACTA
TPus</ns2:name>
        <ns2:value>-322</ns2:value>
      </ns5:parameterValue>
      <ns5:parameterValue>
        <ns2:name>InternetGatewayDevice.WANDevice.1.WANDSLDiagnostics.HLIN
SCds</ns2:name>
        <ns2:value>58080</ns2:value>
      </ns5:parameterValue>
      ...
    </ns5:parameterValue>
    <ns5:parameterValue>
      <ns2:name>InternetGatewayDevice.WANDevice.1.WANDSLDiagnostics.X_00
D09E_DownstreamAttenAt300Khz</ns2:name>
      <ns2:value>-44</ns2:value>
    </ns5:parameterValue>
    <ns5:parameterValue>
      <ns2:name>InternetGatewayDevice.WANDevice.1.WANDSLDiagnostics.X_00
D09E_FinalRxGain</ns2:name>
      <ns2:value>120</ns2:value>
    </ns5:parameterValue>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

```

<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.WANDevice.1.WANDSLDiagnostics.X_00
  D09E_ImpulseNoiseProtection</ns2:name>
  <ns2:value>10</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.WANDevice.1.WANDSLDiagnostics.X_00
  D09E_DelayOfLatencyPath</ns2:name>
  <ns2:value>78</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.WANDevice.1.WANDSLDiagnostics.X_00
  D09E_Max1</ns2:name>
  <ns2:value>55460000</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.WANDevice.1.WANDSLDiagnostics.X_00
  D09E_Max2</ns2:name>
  <ns2:value>60948000</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.WANDevice.1.WANDSLDiagnostics.X_00
  D09E_Mgn1</ns2:name>
  <ns2:value>190</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.WANDevice.1.WANDSLDiagnostics.X_00
  D09E_Mgn2</ns2:name>
  <ns2:value>185</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.WANDevice.1.WANDSLDiagnostics.X_00
  D09E_DsmVersion</ns2:name>
  <ns2:value>3.31.6</ns2:value>
</ns5:parameterValue>
<ns5:parameterValue>
  <ns2:name>InternetGatewayDevice.WANDevice.1.WANDSLDiagnostics.X_00
  D09E_ModemVersion</ns2:name>
  <ns2:value>1.68.14-A1 SW:8.117.070112</ns2:value>
</ns5:parameterValue>
  ...
</ns5:WANDSLDiagnosticsResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```



## CHAPTER 4

# Device Management Service

The operations in the Device Management Service are used to work with the devices managed by CMS.

The following operations are included in this service:

- [AddCustomDeviceProperties](#)
- [ApplyDeviceFirmware](#)
- [CancelDeviceWorkflow](#)
- [ClearDeviceRecord](#)
- [CreateDeviceRecord](#)
- [EnqueueConnectionRequest](#)
- [EnqueueDeviceParameterValues](#)
- [EnqueueDeviceWorkflow](#)
- [ExecuteCustomXMLRPC](#)
- [FactoryResetDevice](#)
- [GetDeviceApplicableFirmware](#)
- [GetDeviceCollectedParameters](#)
- [GetDeviceEnqueuedWorkflows](#)
- [GetDeviceParameterValues](#)
- [GetDevices](#)
- [GetDeviceSearchables](#)
- [GetDeviceWorkflowStatus](#)
- [RebootDevice](#)
- [RemoveCustomDeviceProperties](#)
- [ReplaceDeviceWithExistingDevice](#)
- [ReplaceDeviceWithNewDevice](#)
- [SearchDevices](#)
- [SetDeviceParameterValues](#)

## AddCustomDeviceProperties

The `AddCustomDeviceProperties` operation sets one or more custom properties on a single device.

### Request Parameters

`AddCustomDevicePropertiesRequest` with the following elements:

- `deviceSelector`. A [DeviceSelector](#) value for the device that will be acted upon.
- `customProperty`. A [CustomDeviceProperty](#) value for the key-value pair to set on the device. There can be more than one specified.

### Response

This operation has no response.

### Fault Type Codes

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:AddCustomDevicePropertiesRequest>
      <v1:deviceSelector xsi:type="v11:SerialNumberAndOUIDeviceSelector">
        <v11:serialNumber>204116022745</v11:serialNumber>
        <v11:oui>00D09E</v11:oui>
      </v1:deviceSelector>
      <v1:customProperty>
        <v1:key>k1</v1:key>
        <v1:value>v1</v1:value>
      </v1:customProperty>
    </v1:AddCustomDevicePropertiesRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

### Sample Response

This operation has no response.



## ApplyDeviceFirmware

The `ApplyDeviceFirmware` operation performs a standard TR-069 firmware download on a single device.

### Request Parameters

`ApplyDeviceFirmwareRequest` with the following elements:

- `deviceSelector`. A [DeviceSelector](#) value for the device that will be acted upon.
- `firmwareId`. An [EntityID](#) value for the firmware image to apply to the device.

### Response

`ApplyDeviceFirmwareResponse` with the following element:

- `queuedDeviceWorkflowId`. An [EntityID](#) value for the workflow enqueued for the device to perform the firmware download. This ID can later be used to check the status of the workflow.

### Fault Type Codes

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

`NoSuchEntityException`. A fault code indicating that the specified entity does not exist.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:ApplyDeviceFirmwareRequest>
      <v1:deviceSelector xsi:type="v11:SerialNumberAndOUIDeviceSelector">
        <v11:serialNumber>204116023116</v11:serialNumber>
        <v11:oui>00D09E</v11:oui>
      </v1:deviceSelector>
      <v1:firmwareId>1</v1:firmwareId>
    </v1:ApplyDeviceFirmwareRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

## Sample Response

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns5:ApplyDeviceFirmwareResponse xmlns:ns5="http://twowire.com/dmc/apps/
nbiws/devicemgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/
v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0"
xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0"
xmlns:ns6="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0"
xmlns:ns7="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0"
xmlns:ns8="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0"
xmlns:ns9="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0">
      <ns5:workflowId>1029</ns5:workflowId>
    </ns5:ApplyDeviceFirmwareResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

## CancelDeviceWorkflow

The `CancelDeviceWorkflow` operation sends a request to cancel a workflow enqueued to a device.

### Request Parameters

`CancelDeviceWorkflowRequest` with the following element:

- queuedDeviceWorkflowId.** An [EntityID](#) value for the internal ID of the enqueued device workflow object to cancel, as returned in the response to a [GetDeviceEnqueuedWorkflows](#) request message.

### Response

This operation has no response.

### Fault Type Codes

`NoSuchEntityException`. Fault type returned if the device workflow is not enqueued. This can be due to either no such device workflow having ever existed OR the device workflow already having terminated.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0">
  <soapenv:Body>
    <v1:CancelDeviceWorkflowRequest>
      <v1:queuedDeviceWorkflowId>6</v1:queuedDeviceWorkflowId>
    </v1:CancelDeviceWorkflowRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

### Sample Response

This operation has no response.

## ClearDeviceRecord

The `ClearDeviceRecord` operation resets the state of the Device record to a pristine condition suitable for reuse with a different subscriber. Any existing subscriber association is cleared (dissociated) by this request.

### Request Parameters

`ClearDeviceRecordRequest` with the following elements:

- `deviceSelector`. A [DeviceSelector](#) value for the device that will be acted upon.

### Response

This operation has no response.

### Fault Type Codes

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:ClearDeviceRecordRequest>
      <v1:deviceSelector xsi:type="v11:SerialNumberAndOUIDeviceSelector">
        <v11:serialNumber>204116022745</v11:serialNumber>
        <v11:oui>00D09E</v11:oui>
      </v1:deviceSelector>
    </v1:ClearDeviceRecordRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

### Sample Response

This operation has no response.

## CreateDeviceRecord

The `CreateDeviceRecord` operation creates a new record for a device having the given OUI and serial number. Device records are automatically created upon successful authentication of the device. This API is provided to accommodate the scenario in which the record needs to be established in advance of the device booting.

### Request Parameters

`CreateDeviceRecordRequest` with the following elements:

- `oui`. An `OUI_TYPE` value for the OUI of the manufacturer of the new device to create.
- `serialNumber`. A `string` value for the serial number of the new device to create. It must be 1-64 characters in length.

### Response

`CreateDeviceRecordResponse` with the following elements:

- `id`. An `EntityID` value for the internal ID of the newly created device.

### Fault Type Codes

`NoSuchEntityException`. A fault code indicating no manufacturer is found having the given OUI of the new device.

`EntityExistsException`. A fault code indicating that a device having the OUI and serial number already exists.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1>CreateDeviceRecordRequest>
      <v1:oui>00D09E</v1:oui>
      <v1:serialNumber>204116022745</v1:serialNumber>
    </v1>CreateDeviceRecordRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

### Sample Response

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns5>CreateDeviceRecordResponse xmlns:ns5="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0" xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0" xmlns:ns6="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0">
```

```
xmlns:ns7="http://twowire.com/dmc/apps/nbiws/scheduledworkflowgmt/v1_0"  
xmlns:ns8="http://twowire.com/dmc/apps/nbiws/subscribergmt/v1_0"  
xmlns:ns9="http://twowire.com/dmc/apps/nbiws/workflowgmt/v1_0">  
  <ns5:id>1000</ns5:id>  
</ns5:CreateDeviceRecordResponse>  
</SOAP-ENV:Body>  
</SOAP-ENV:Envelope>
```

## EnqueueConnectionRequest

The `EnqueueConnectionRequest` operation enqueues a request in the system to perform a CWMP connection request to the device specified by the given device selector. The selector must resolve to a single device.

### Request Parameters

`EnqueueConnectionRequestRequest` with the following element:

- `deviceSelector`. A [DeviceSelector](#) value for the device that will be acted upon.

### Response

This operation has no response.

### Fault Type Codes

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:base="http://twowire.com/dmc/apps/nbiws/base/v1_0"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0">
  <soapenv:Body>
    <v1:EnqueueConnectionRequestRequest>
      <v1:deviceSelector xsi:type="base:SerialNumberAndOUIDeviceSelector">
        <base:serialNumber>103122009532</base:serialNumber>
        <base:oui>00D09E</base:oui>
      </v1:deviceSelector>
    </v1:EnqueueConnectionRequestRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

### Sample Response

This operation has no response.

## EnqueueDeviceParameterValues

The `EnqueueDeviceParameterValues` operation enqueues a workflow for a single device to set the specified parameter values. The changes are applied the next time the device connects to the system (for example, following the next periodic inform).

### Request Parameters

`EnqueueDeviceParameterValuesRequest` with the following elements:

- `deviceSelector`. A [DeviceSelector](#) value for the device that will be acted upon.
- `parameterNameValuePair`. A [NameValuePair](#) value for the parameter to be set on the device and its corresponding value. There can be more than one specified.

### Response

`EnqueueDeviceParameterValuesRequest` with the following element:

- `queuedDeviceWorkflowId`. An [EntityID](#) value for the internal ID of the enqueued workflow, which can be used to check the status of the workflow.

### Fault Type Codes

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:EnqueueDeviceParameterValuesRequest>
      <v1:deviceSelector xsi:type="v11:SerialNumberAndOUIDeviceSelector">
        <v11:serialNumber>204116022745</v11:serialNumber>
        <v11:oui>00D09E</v11:oui>
      </v1:deviceSelector>
      <v1:parameterNameValuePair>
        <v11:name>InternetGatewayDevice.Time.NTPServer1</v11:name>
        <v11:value>pool.ntp.org</v11:value>
      </v1:parameterNameValuePair>
    </v1:EnqueueDeviceParameterValuesRequest>
  </soapenv:Body>
</soapenv:Envelope>
```



**Sample Response**

```

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns6:EnqueueDeviceParameterValuesResponse xmlns:ns6="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0" xmlns:ns10="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0" xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0" xmlns:ns5="http://twowire.com/dmc/apps/nbiws/devicediagnostics/v1_0" xmlns:ns7="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0" xmlns:ns8="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0" xmlns:ns9="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0">
      <ns6:queuedDeviceWorkflowId>1001</ns6:queuedDeviceWorkflowId>
    </ns6:EnqueueDeviceParameterValuesResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

## EnqueueDeviceWorkflow

The `EnqueueDeviceWorkflow` operation enqueues the specified workflow (and any supplied parameters) to the given device.

### Request Parameters

`EnqueueDeviceWorkflowRequest` with the following elements:

- `deviceSelector`. A [DeviceSelector](#) value for the device that will be acted upon.
- `workflowName`. A [string](#) value for the name of the workflow to enqueue.
- `parameterValue`. A [WorkflowParameterAndValue](#) value for the parameter value to be applied to the execution of the workflow. This element is optional, and there can be more than one specified.
- `earliestExecutionTime`. A [dateTime](#) value for the earliest (database-relative) time the workflow is permitted to be executed. If null, immediate execution upon receipt is implied. This element is optional.
- `cancelAfter`. A [dateTime](#) value for the latest time after which the workflow is no longer permitted to be executed and will be canceled by the server. If null, the workflow will remain enqueued until executed by the device or the device record is cleared or associated to another subscriber. This element is optional.

### Response

`EnqueueDeviceWorkflowResponse` with the following element:

- `queuedDeviceWorkflowId`. An [EntityID](#) value for the internal ID of the enqueued device workflow object, as returned in the response to a [GetDeviceEnqueuedWorkflows](#) request message.

### Fault Type Codes

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`InvalidWorkflowParameterException`. A fault code indicating that the specified workflow parameters are invalid.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

`NoSuchEntityException`. A fault code indicating that the workflow specified does not exist.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
```

```

<soapenv:Body>
  <v1:EnqueueDeviceWorkflowRequest>
    <v1:deviceSelector xsi:type="v11:SerialNumberAndOUIDeviceSelector">
      <v11:serialNumber>204116022745</v11:serialNumber>
      <v11:oui>00D09E</v11:oui>
    </v1:deviceSelector>
    <v1:workflowName>2Wire Get Device Log</v1:workflowName>
    <v1:parameterValue>
      <v1:actionName>processRequest</v1:actionName>
      <v1:parameterName>logName</v1:parameterName>
      <v1:value xsi:type="v11:SimpleWorkflowParameterValue">
        <v11:value>TheDebugLog</v11:value>
      </v1:value>
    </v1:parameterValue>
    <v1:parameterValue>
      <v1:actionName>processRequest</v1:actionName>
      <v1:parameterName>clear</v1:parameterName>
      <v1:value xsi:type="v11:SimpleWorkflowParameterValue">
        <v11:value>>false</v11:value>
      </v1:value>
    </v1:parameterValue>
  </v1:EnqueueDeviceWorkflowRequest>
</soapenv:Body>
</soapenv:Envelope>

```

## Sample Response

```

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns5:EnqueueDeviceWorkflowResponse xmlns:ns5="http://twowire.com/dmc/
    apps/nbiws/devicemgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/
    base/v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0"
    xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0"
    xmlns:ns6="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0"
    xmlns:ns7="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0"
    xmlns:ns8="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0"
    xmlns:ns9="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0">
      <ns5:queuedDeviceWorkflowId>1002</ns5:queuedDeviceWorkflowId>
    </ns5:EnqueueDeviceWorkflowResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

## ExecuteCustomXMLRPC

The `ExecuteCustomXMLRPC` operation executes a custom XML RPC against the selected device. This provides a means of accessing vendor extension device methods otherwise unknown by this system.

### Request Parameters

`ExecuteCustomXMLRPCRequest` with the following elements:

- `deviceSelector`. A `DeviceSelector` value for the device that will be acted upon.
- `requestXml`. A `string` value for the complete XML contents of the RPC request (excluding outer CWMP elements such as the SOAP Body).
- `timeout`. A `TimeWithUnits` value for the amount of time in which the device can respond with the requested data before the request is terminated and a `TimeoutException` fault is returned.

### Response

`ExecuteCustomXMLRPCResponse` with the following element:

- `responseXml`. A `string` value for the complete XML contents of the RPC response (excluding outer CWMP elements such as the SOAP Body).

### Fault Type Codes

`DeviceFaultedException`. A fault code indicating the device faulted during execution of a request (for example, if it returned an unexpected CWMP fault).

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

`TimeoutException`. A fault indicating a time-out occurred waiting for completion of a request.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:ExecuteCustomXMLRPCRequest>
      <v1:deviceSelector xsi:type="v11:SerialNumberAndOUIDeviceSelector">
        <v11:serialNumber>204116023116</v11:serialNumber>
        <v11:oui>00D09E</v11:oui>
      </v1:deviceSelector>
    </v1:ExecuteCustomXMLRPCRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

```

<v1:requestXml><![CDATA[
  <urn:X_00D09E_MyCustomRPC xmlns:urn="urn:dslforum-org:cwmp-1-0">
    <someStringValue>test</someStringValue>
    <someIntValue>67432</someIntValue>
    <someNestedElement>
      <a>87324</a>
      <b>945</b>
    </someNestedElement>
  </urn:X_00D09E_MyCustomRPC>]]>
</v1:requestXml>
<v1:timeout>
  <v11:value>30</v11:value>
  <v11:units>SECONDS</v11:units>
</v1:timeout>
</v1:ExecuteCustomXMLRPCRequest>
</soapenv:Body>
</soapenv:Envelope>

```

### Sample Response

```

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns5:ExecuteCustomXMLRPCResponse xmlns:ns5="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0" xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0" xmlns:ns6="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0" xmlns:ns7="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0" xmlns:ns8="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0" xmlns:ns9="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0">
      <ns5:responseXml><![CDATA[<cwmp:X_00D09E_MyCustomRPCResponse xmlns:cwmp="urn:dslforum-org:cwmp-1-0" xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/">
        <><ReceivedContents><X_00D09E_MyCustomRPC xmlns:urn="urn:dslforum-org:cwmp-1-0"><someStringValue>test</someStringValue><someIntValue>67432</someIntValue><someNestedElement><a>87324</a><b>945</b></someNestedElement></X_00D09E_MyCustomRPC></ReceivedContents></cwmp:X_00D09E_MyCustomRPCResponse>]]></ns5:responseXml>
    </ns5:ExecuteCustomXMLRPCResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

## FactoryResetDevice

The `FactoryResetDevice` operation requests an immediate factory reset of a single device. A connection request is issued to the device. The system does not wait for the device to be contacted, but instead returns immediately with the ID of the factory reset workflow enqueued.

### Request Parameters

`FactoryResetDeviceRequest` with the following element:

- `deviceSelector`. A [DeviceSelector](#) value for the device that will be acted upon.

### Response

`FactoryResetDeviceResponse` with the following element:

- `queuedDeviceWorkflowId`. An [EntityID](#) value for the ID of the workflow enqueued for the device to perform the factory reset. This ID can later be used to check the status of the workflow (such as completed or failed).

### Fault Type Codes

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:FactoryResetDeviceRequest>
      <v1:deviceSelector xsi:type="v11:SerialNumberAndOUIDeviceSelector">
        <v11:serialNumber>204116022745</v11:serialNumber>
        <v11:oui>00D09E</v11:oui>
      </v1:deviceSelector>
    </v1:FactoryResetDeviceRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

### Sample Response

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
```

```
<ns5:FactoryResetDeviceResponse xmlns:ns5="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0" xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0" xmlns:ns6="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0" xmlns:ns7="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0" xmlns:ns8="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0" xmlns:ns9="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0">
  <ns5:workflowId>1003</ns5:workflowId>
</ns5:FactoryResetDeviceResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

## GetDeviceApplicableFirmware

The `GetDeviceApplicableFirmware` operation retrieves the firmware images applicable to the selected device.

### Request Parameters

`GetDeviceApplicableFirmwareRequest` with the following element:

- `deviceSelector`. A [DeviceSelector](#) value for the device that will be acted upon.

### Response

`GetDeviceApplicableFirmwareResponse` with the following element:

- `firmware`. A [Firmware](#) value for the firmware image applicable to the selected device. This element is optional, and there can be more than one specified.

### Fault Codes

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

### Sample Request

```
<soapenv:Envelope
xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  <soapenv:Body>
    <v1:GetDeviceApplicableFirmwareRequest>
      <v1:deviceSelector xsi:type="v11:SerialNumberAndOUIDeviceSelector">
        <v11:serialNumber>204116022745</v11:serialNumber>
        <v11:oui>00D09E</v11:oui>
      </v1:deviceSelector>
    </v1:GetDeviceApplicableFirmwareRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

### Sample Response

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns6:GetDeviceApplicableFirmwareResponse xmlns:ns6="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0" xmlns:ns10="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0" xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0">
```



```

xmlns:ns5="http://twowire.com/dmc/apps/nbiws/devicediagnostics/v1_0"
xmlns:ns7="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0"
xmlns:ns8="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0"
xmlns:ns9="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0">
  <ns6:firmware>
    <ns2:id>1</ns2:id>
    <ns2:created>2009-07-13T09:18:51.894Z</ns2:created>
    <ns2:createdBy>nbiws</ns2:createdBy>
    <ns2:lastModified>2009-07-13T09:19:14.842Z</ns2:lastModified>
    <ns2:lastModifiedBy>nbiws</ns2:lastModifiedBy>
    <ns2:uuid>1</ns2:uuid>
    <ns6:name>Test Firmware</ns6:name>
    <ns6:description>Test Firmware Image</ns6:description>
    <ns6:version>1.1.1.1</ns6:version>
    <ns6:oui>00D09E</ns6:oui>
    <ns6:modelIdentifierNames>2700-100000</ns6:modelIdentifierNames>
  </ns6:firmware>
</ns6:GetDeviceApplicableFirmwareResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

## GetDeviceCollectedParameters

The `GetDeviceCollectedParameters` operation retrieves the parameter values (and dates changed or observed) of which the system is aware for a specific device.

### Request Parameters

`GetDeviceCollectedParametersRequest` with the following element:

- `deviceSelector`. A [DeviceSelector](#) value for the device that will be acted upon.

### Response

`GetDeviceCollectedParametersResponse` with the following element:

- `collectedParameter`. A [DeviceCollectedParameter](#) value for the parameter information collected for the device. This element is optional, and there can be more than one specified.

### Fault Type Codes

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:GetDeviceCollectedParametersRequest>
      <v1:deviceSelector xsi:type="v11:ExpressionDeviceSelector">
        <v11:expression>
          <v11:expression xsi:type="v11:SearchableExpression">
            <v11:searchable>
              <v11:key>SerialNumber</v11:key>
              <v11:categoryName>Device</v11:categoryName>
            </v11:searchable>
            <v11:operator>EQ</v11:operator>
            <v11:searchableValue xsi:type="v11:StringSearchableValue">
              <v11:value>204116022745</v11:value>
            </v11:searchableValue>
          </v11:expression>
          <v11:groupingOperator>AND</v11:groupingOperator>
          <v11:searchType>com.twowire.dmc.model.Device</v11:searchType>
        </v11:expression>
      </v1:deviceSelector>
    </v1:GetDeviceCollectedParametersRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

```

    <v1:includeHistory>>false</v1:includeHistory>
  </v1:GetDeviceCollectedParametersRequest>
</soapenv:Body>
</soapenv:Envelope>

```

## Sample Response

```

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns6:GetDeviceCollectedParametersResponse xmlns:ns6="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0" xmlns:ns10="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0" xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0" xmlns:ns5="http://twowire.com/dmc/apps/nbiws/devicediagnostics/v1_0" xmlns:ns7="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0" xmlns:ns8="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0" xmlns:ns9="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0">
      <ns6:collectedParameter>
        <ns6:parameterName>InternetGatewayDevice.Time.NTPServer3</ns6:parameterName>
        <ns6:collected>2009-05-14T19:05:14.441Z</ns6:collected>
        <ns6:value>pool.ntp.org</ns6:value>
      </ns6:collectedParameter>
      <ns6:collectedParameter>
        <ns6:parameterName>InternetGatewayDevice.ManagementServer.PeriodicInformInterval</ns6:parameterName>
        <ns6:collected>2009-05-14T19:05:14.447Z</ns6:collected>
        <ns6:value>60</ns6:value>
      </ns6:collectedParameter>
      <ns6:collectedParameter>
        <ns6:parameterName>InternetGatewayDevice.Time.NTPServer4</ns6:parameterName>
        <ns6:collected>2009-05-14T19:05:14.443Z</ns6:collected>
        <ns6:value>pool.ntp.org</ns6:value>
      </ns6:collectedParameter>
      <ns6:collectedParameter>
        <ns6:parameterName>InternetGatewayDevice.X_00D09E_Debug.SshdEnabled</ns6:parameterName>
        <ns6:collected>2009-05-14T19:05:14.518Z</ns6:collected>
        <ns6:value>1</ns6:value>
      </ns6:collectedParameter>
      <ns6:collectedParameter>
        <ns6:parameterName>InternetGatewayDevice.Time.NTPServer5</ns6:parameterName>
        <ns6:collected>2009-05-14T19:05:14.445Z</ns6:collected>
        <ns6:value>pool.ntp.org</ns6:value>
      </ns6:collectedParameter>
      <ns6:collectedParameter>
        <ns6:parameterName>InternetGatewayDevice.Time.NTPServer2</ns6:parameterName>
        <ns6:collected>2009-05-14T19:05:14.438Z</ns6:collected>
        <ns6:value>pool.ntp.org</ns6:value>
      </ns6:collectedParameter>
    </ns6:GetDeviceCollectedParametersResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

```
</SOAP-ENV:Body>  
</SOAP-ENV:Envelope>
```

## GetDeviceEnqueuedWorkflows

The `GetDeviceEnqueuedWorkflows` operation retrieves the enqueued workflows for a given device.

### Request Parameters

`GetDeviceEnqueuedWorkflowsRequest` with the following element:

- `deviceSelector`. A [DeviceSelector](#) value for the device that will be acted upon.

### Response

`GetDeviceEnqueuedWorkflowsResponse` with the following element:

- `deviceWorkflow`. A [QueuedDeviceWorkflow](#) value for the enqueued device workflow. This element is optional, and there can be more than one specified.

### Fault Type Codes

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:GetDeviceEnqueuedWorkflowsRequest>
      <v1:deviceSelector xsi:type="v11:ExpressionDeviceSelector">
        <v11:expression>
          <v11:expression xsi:type="v11:SearchableExpression">
            <v11:searchable>
              <v11:key>SerialNumber</v11:key>
              <v11:categoryName>Device</v11:categoryName>
            </v11:searchable>
            <v11:operator>EQ</v11:operator>
            <v11:searchableValue xsi:type="v11:StringSearchableValue">
              <v11:value>204116022745</v11:value>
            </v11:searchableValue>
          </v11:expression>
          <v11:groupingOperator>AND</v11:groupingOperator>
          <v11:searchType>com.twowire.dmc.model.Device</v11:searchType>
        </v11:expression>
      </v1:deviceSelector>
    </v1:GetDeviceEnqueuedWorkflowsRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

```

    </v1:GetDeviceEnqueuedWorkflowsRequest>
  </soapenv:Body>
</soapenv:Envelope>

```

## Sample Response

```

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns5:GetDeviceEnqueuedWorkflowsResponse xmlns:ns5="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0" xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0" xmlns:ns6="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0" xmlns:ns7="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0" xmlns:ns8="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0" xmlns:ns9="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0">
      <ns5:deviceWorkflow>
        <ns2:id>1000</ns2:id>
        <ns2:created>2009-04-10T16:40:02.491Z</ns2:created>
        <ns2:createdBy>system</ns2:createdBy>
        <ns2:lastModified>2009-04-10T16:40:02.491Z</ns2:lastModified>
        <ns2:lastModifiedBy>system</ns2:lastModifiedBy>
        <ns2:uuid>3ba55a3125ee11dea1790a250a311f90</ns2:uuid>
        <ns5:workflowDefinitionId>1010</ns5:workflowDefinitionId>
        <ns5:workflowDefinitionName>Schedule Device Inform</ns5:workflowDefinitionName>
        <ns5:parameterValue>
          <ns5:actionName>processScheduleInformRequest</ns5:actionName>
          <ns5:parameterName>desiredInformDate</ns5:parameterName>
          <ns5:value xsi:type="ns2:SimpleWorkflowParameterValue" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
            <ns2:value>2009-04-11T16:40:02.428Z</ns2:value>
          </ns5:value>
        </ns5:parameterValue>
      </ns5:deviceWorkflow>
    </ns5:GetDeviceEnqueuedWorkflowsResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

## GetDeviceParameterValues

The `GetDeviceParameterValues` operation retrieves specified parameters from a single device. The system performs a CWMP connection request and waits (up to the time-out) for the device to return the requested data.

### Request Parameters

`GetDeviceParameterValuesRequest` with the following elements:

- `deviceSelector`. A [DeviceSelector](#) value for the device that will be acted upon.
- `parameterName`. A [string](#) value for the TR-069 parameter name for which the value should be retrieved from the device. It must be 1-4000 characters in length. There can be more than one specified.
- `timeout`. A [TimeWithUnits](#) value for the amount of time in which the device can respond with the requested data before the request is terminated and a `TimeoutException` fault is returned.

### Response

`GetDeviceParameterValuesResponse` with the following element:

- `parameterValue`. A [NameValuePair](#) value for the parameter name requested from the device and its corresponding value. Note that requests for a hierarchy of device parameters (such as descendant parameters names and their values in the parameter hierarchy) will result in more values returned than were requested. This element is optional, and there can be more than one specified.

### Fault Type Codes

`DeviceFaultedException`. A fault code indicating the device faulted during execution of a request (for example, if it returned an unexpected CWMP fault).

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

`TimeoutException`. A fault indicating a time-out occurred waiting for completion of a request.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:GetDeviceParameterValuesRequest>
```

```

    <v1:deviceSelector xsi:type="v11:SerialNumberAndOUIDeviceSelector">
      <v11:serialNumber>103122009532</v11:serialNumber>
      <v11:oui>00D09E</v11:oui>
    </v1:deviceSelector>
    <v1:parameterName>InternetGatewayDevice.Time.NTPServer1</
v1:parameterName>
    <v1:timeout>
      <v11:value>30</v11:value>
      <v11:units>SECONDS</v11:units>
    </v1:timeout>
  </v1:GetDeviceParameterValuesRequest>
</soapenv:Body>
</soapenv:Envelope>

```

## Sample Response

```

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns5:GetDeviceParameterValuesResponse xmlns:ns5="http://twowire.com/dmc/
apps/nbiws/devicemgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/
base/v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0"
xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0"
xmlns:ns6="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0"
xmlns:ns7="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0"
xmlns:ns8="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0"
xmlns:ns9="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0">
      <ns5:parameterValue>
        <ns2:name>InternetGatewayDevice.Time.NTPServer1</ns2:name>
        <ns2:value>ntp1.2wire.com</ns2:value>
      </ns5:parameterValue>
    </ns5:GetDeviceParameterValuesResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```



## GetDevices

The `GetDevices` operation returns data describing one or more devices based on the device selector given.

### Request Parameters

`GetDevicesRequest` with the following element:

- `deviceSelector`. A [DeviceSelector](#) value for the device that will be acted upon.

### Response

`GetDevicesResponse` with the following elements:

- `device`. A [Device](#) value for the details about the selected device. This element is optional, and there can be more than one specified.

### Fault Type Codes

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:GetDevicesRequest>
      <v1:deviceSelector xsi:type="v11:ExpressionDeviceSelector">
        <v11:expression>
          <v11:expression xsi:type="v11:SearchableExpression">
            <v11:searchable>
              <v11:key>NumericWANIPAddress</v11:key>
              <v11:categoryName>Device</v11:categoryName>
            </v11:searchable>
            <v11:operator>GT</v11:operator>
            <v11:searchableValue xsi:type="v11:IntegerSearchableValue">
              <v11:value>1</v11:value>
            </v11:searchableValue>
          </v11:expression>
          <v11:expression xsi:type="v11:SearchableExpression">
            <v11:searchable>
              <v11:key>NumericWANIPAddress</v11:key>
              <v11:categoryName>Device</v11:categoryName>
            </v11:searchable>
            <v11:operator>LT</v11:operator>
            <v11:searchableValue xsi:type="v11:IntegerSearchableValue">
              <v11:value>9999999999999999</v11:value>
            </v11:searchableValue>
          </v11:expression>
        </v11:expression>
      </v1:deviceSelector>
    </v1:GetDevicesRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

```

        <v11:groupingOperator>AND</v11:groupingOperator>
        <v11:searchType>com.twowire.dmc.model.Device</v11:searchType>
    </v11:expression>
</v1:devicesSelector>
</v1:GetDevicesRequest>
</soapenv:Body>
</soapenv:Envelope>

```

## Sample Response

```

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns4:GetDevicesResponse xmlns:ns4="http://twowire.com/dmc/apps/nbiws/
    devicemgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0"
    xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0"
    xmlns:ns5="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0"
    xmlns:ns6="http://twowire.com/dmc/apps/nbiws/manufacturermgmt/v1_0"
    xmlns:ns7="http://twowire.com/dmc/apps/nbiws/scheduledworkflowngmt/v1_0"
    xmlns:ns8="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0"
    xmlns:ns9="http://twowire.com/dmc/apps/nbiws/workflowngmt/v1_0">
      <ns4:device>
        <ns2:id>1220</ns2:id>
        <ns2:created>2009-03-04T14:24:37.249Z</ns2:created>
        <ns2:createdBy>00D09E-204116022745</ns2:createdBy>
        <ns2:lastModified>2009-03-04T17:36:13.403Z</ns2:lastModified>
        <ns2:lastModifiedBy>00D09E-204116022745</ns2:lastModifiedBy>
        <ns2:uuid>2d2fead008c811dea0350a2506441f90</ns2:uuid>
        <ns4:serialNumber>204116022745</ns4:serialNumber>
        <ns4:oui>00D09E</ns4:oui>
        <ns4:productClass>IntelligentGateway_1800</ns4:productClass>
        <ns4:lastInform>2009-03-04T16:38:22.045Z</ns4:lastInform>
        <ns4:connectionRequestURL>http://harp:8180/cwmp-web-sim/conReq/
        00D09E-IntelligentGateway_1800-204116022745</
        ns4:connectionRequestURL>
        <ns4:hardwareVersion>2700-000370-000</ns4:hardwareVersion>
        <ns4:softwareVersion>5.29.105.76</ns4:softwareVersion>
        <ns4:WANIPAddress>10.37.6.68</ns4:WANIPAddress>
        <ns4:numericWANIPAddress>281470851941956</ns4:numericWANIPAddress>
        <ns4:provisioningCode>529N-2374-WHE2-22AZ-B27S</
        ns4:provisioningCode>
        <ns4:subscriberId>1020</ns4:subscriberId>
        <ns4:organizationName>Test</ns4:organizationName>
        <ns4:organizationId>1001</ns4:organizationId>
        <ns4:provisioned>true</ns4:provisioned>
        <ns4:deviceClassifier>
          <ns2:id>1001</ns2:id>
          <ns2:created>2009-03-04T07:46:13.488Z</ns2:created>
          <ns2:createdBy>INSTALLER</ns2:createdBy>
          <ns2:lastModified>2009-03-04T07:46:13.488Z</ns2:lastModified>
          <ns2:lastModifiedBy>INSTALLER</ns2:lastModifiedBy>
          <ns2:uuid>1001</ns2:uuid>
          <ns2:name>2Wire.device</ns2:name>
        </ns4:deviceClassifier>
      </ns4:device>
    </ns4:GetDevicesResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

```
</SOAP-ENV:Body>  
</SOAP-ENV:Envelope>
```

## GetDeviceSearchables

The `GetDeviceSearchables` operation retrieves the set of Searchables that may be used within a `SearchableExpression` on Devices, such as when selecting Devices by expression or when searching for Devices.

### Request Parameters

`GetDeviceSearchablesRequest`

### Response

`GetDeviceSearchablesResponse` with the following elements

- `searchable`. A `Searchable` value for a device searchable. This element is optional, and there can be more than one specified.

### Fault Type Codes

There are no fault codes defined for this operation.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:GetDeviceSearchablesRequest/>
  </soapenv:Body>
</soapenv:Envelope>
```

### Sample Response

---

**Note** The following is an excerpt from the response.

---

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns5:GetDeviceSearchablesResponse xmlns:ns5="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0" xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0" xmlns:ns6="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0" xmlns:ns7="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0" xmlns:ns8="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0" xmlns:ns9="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0">
      <ns5:searchable>
        <ns2:id>1000</ns2:id>
        <ns2:created>2009-04-10T08:25:13.337Z</ns2:created>
        <ns2:createdBy>INSTALLER</ns2:createdBy>
        <ns2:lastModified>2009-04-10T08:25:13.337Z</ns2:lastModified>
        <ns2:lastModifiedBy>INSTALLER</ns2:lastModifiedBy>
      </ns5:searchable>
    </ns5:GetDeviceSearchablesResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

```
<ns2:uuid>1000</ns2:uuid>
<ns2:key>SerialNumber</ns2:key>
<ns2:propertyPath>serialNumber</ns2:propertyPath>
<ns2:targetClass>java.lang.String</ns2:targetClass>
<ns2:collection>>false</ns2:collection>
<ns2:dateTime>>false</ns2:dateTime>
<ns2:categoryName>Device</ns2:categoryName>
</ns5:searchable>
...
</ns5:GetDeviceSearchablesResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

## GetDeviceWorkflowStatus

The `GetDeviceWorkflowStatus` operation retrieves the status of the given enqueued device workflow.

### Request Parameters

`GetDeviceWorkflowStatusRequest` with the following element:

- `queuedDeviceWorkflowId`. An [EntityID](#) value for the internal identifier for the enqueued device workflow, as returned in the response to a [GetDeviceEnqueuedWorkflows](#) request message.

### Response

`GetDeviceWorkflowStatusResponse` with the following elements:

- `status`. A [DeviceWorkflowStatus](#) value for the status of the device workflow.
- `detailedReason`. A [string](#) value for the detailed failure reason, in the event of a failure status. This element is optional.

### Fault Type Codes

`NoSuchEntityException`. Fault type returned if the device workflow does not exist.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
  <soapenv:Body>
    <v1:GetDeviceWorkflowStatusRequest>
      <v1:queuedDeviceWorkflowId>1000</v1:queuedDeviceWorkflowId>
    </v1:GetDeviceWorkflowStatusRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

### Sample Response

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns5:GetDeviceWorkflowStatusResponse xmlns:ns5="http://twowire.com/dmc/
  apps/nbiws/devicemgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/
  base/v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0"
  xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0"
  xmlns:ns6="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0"
  xmlns:ns7="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0"
  xmlns:ns8="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0"
  xmlns:ns9="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0">
      <ns5:status>Incomplete</ns5:status>
    </ns5:GetDeviceWorkflowStatusResponse>
```

```
</SOAP-ENV:Body>  
</SOAP-ENV:Envelope>
```

## RebootDevice

The `RebootDevice` operation requests an immediate reboot of a single device. A connection request is issued to the device. The system does not wait for the device to be contacted, but instead returns immediately with the ID of the reboot workflow enqueued.

### Request Parameters

`RebootDeviceRequest` with the following element:

- `deviceSelector`. A [DeviceSelector](#) value for the device that will be acted upon.

### Response

`RebootDeviceResponse` with the following element:

- `queuedDeviceWorkflowId`. An [EntityID](#) value for the ID of the workflow enqueued for the device to perform the reboot. This ID can later be used to check the status of the workflow (such as completed or failed).

### Fault Type Codes

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:RebootDeviceRequest>
      <v1:deviceSelector xsi:type="v11:SerialNumberAndOUIDeviceSelector">
        <v11:serialNumber>204116022745</v11:serialNumber>
        <v11:oui>00D09E</v11:oui>
      </v1:deviceSelector>
    </v1:RebootDeviceRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

### Sample Response

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
```



```
<ns5:RebootDeviceResponse xmlns:ns5="http://twowire.com/dmc/apps/nbiws/  
devicemgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0"  
xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0"  
xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0"  
xmlns:ns6="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0"  
xmlns:ns7="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0"  
xmlns:ns8="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0"  
xmlns:ns9="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0">  
  <ns5:workflowId>1005</ns5:workflowId>  
</ns5:RebootDeviceResponse>  
</SOAP-ENV:Body>  
</SOAP-ENV:Envelope>
```

## RemoveCustomDeviceProperties

The `RemoveCustomDeviceProperties` operation removes one or more custom properties on a single device.

### Request Parameters

`RemoveCustomDevicePropertiesRequest` with the following elements:

- `deviceSelector`. A [DeviceSelector](#) value for the device that will be acted upon.
- `customPropertyKey`. A [CustomDeviceProperty](#) value for the custom property key to remove from the device. Removing a non-existent property has no effect. There can be more than one specified.

### Response

This operation has no response.

### Fault Type Codes

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:RemoveCustomDevicePropertiesRequest>
      <v1:deviceSelector xsi:type="v11:SerialNumberAndOUIDeviceSelector">
        <v11:serialNumber>204116022745</v11:serialNumber>
        <v11:oui>00D09E</v11:oui>
      </v1:deviceSelector>
      <v1:customPropertyKey>k2</v1:customPropertyKey>
    </v1:RemoveCustomDevicePropertiesRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

### Sample Response

This operation has no response.

## ReplaceDeviceWithExistingDevice

The `ReplaceDeviceWithExistingDevice` operation migrates the operational content of an existing subscriber's device to a different, existing device. This is typically used to complete a Return Merchandise Authorization (RMA) scenario in which the replacing device is not known at the time the RMA process begins. Attempting to replace a device with itself has no effect.

### Request Parameters

`ReplaceDeviceWithExistingDeviceRequest` with the following elements:

- `oldDeviceSelector`. A `DeviceSelector` value for the device to be replaced.
- `newDeviceSelector`. A `DeviceSelector` value for the device that will replace the device specified by the `oldDeviceSelector`.

### Response

This operation has no response.

### Fault Type Codes

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:ReplaceDeviceWithExistingDeviceRequest>
      <v1:oldDeviceSelector xsi:type="v11:SerialNumberAndOUIDeviceSelector">
        <v11:serialNumber>204116022745</v11:serialNumber>
        <v11:oui>00D09E</v11:oui>
      </v1:oldDeviceSelector>
      <v1:newDeviceSelector xsi:type="v11:SerialNumberAndOUIDeviceSelector">
        <v11:serialNumber>204116022749</v11:serialNumber>
        <v11:oui>00D09E</v11:oui>
      </v1:newDeviceSelector>
    </v1:ReplaceDeviceWithExistingDeviceRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

### **Sample Response**

This operation has no response.

## ReplaceDeviceWithNewDevice

The `ReplaceDeviceWithNewDevice` operation migrates the operational content of an existing subscriber's device to a different, new device specified by the request. This is typically used to complete a Return Merchandise Authorization (RMA) scenario in which the replacing device is known at the time the RMA process begins, but does not yet have a device record.

### Request Parameters

`ReplaceDeviceWithNewDeviceRequest` with the following elements:

- `oldDeviceSelector`. A `DeviceSelector` value for the device to be replaced.
- `oui`. An `OUI_TYPE` value for the OUI of the manufacturer of the new device to create.
- `serialNumber`. A `string` value for the serial number of the new device to create. It must be 1-64 characters in length.

### Response

This operation has no response.

### Fault Type Codes

`EntityExistsException`. A fault code indicating that a device having the OUI and serial number of the new device already exists.

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

`NoSuchEntityException`. A fault code indicating that no manufacturer is found having the given OUI of the new device.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:ReplaceDeviceWithNewDeviceRequest>
      <v1:oldDeviceSelector xsi:type="v11:SerialNumberAndOUIDeviceSelector">
        <v11:serialNumber>204116023116</v11:serialNumber>
        <v11:oui>00D09E</v11:oui>
      </v1:oldDeviceSelector>
      <v1:oui>00D09E</v1:oui>
      <v1:serialNumber>1234</v1:serialNumber>
    </v1:ReplaceDeviceWithNewDeviceRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

```
</soapenv:Body>  
</soapenv:Envelope>
```

### **Sample Response**

This operation has no response.

## SearchDevices

The `SearchDevices` operation performs an unlimited device search. Unlike sending a `GetDevices` request message with an expression, this message enforces no maximum search result size limitation on the query.

---

**Note** If this feature is used to return enormous numbers of devices (such as with a search by just OUI) will have negative performance impact on the server's ability to process other requests in CPU, IO, and memory use.

---

### Request Parameters

`SearchDevicesRequest` with the following element:

- `expression`. A `RootExpression` value for the root expression is of type `com.twowire.dmc.model.Device`.

### Response

`SearchDevicesResponse` with the following elements:

- `resultCount`. An `int` value for the number of devices matching the expression.
- `deviceId`. An `EntityID` value for the internal ID of the device matching the expression. Only the IDs are returned since the result size is unlimited. The caller may send a `GetDevices` request using an ID-based selector to return any subset of the matching devices as best fits the caller's execution model. This element is optional, and there can be more than one specified.

### Fault Type Codes

`InvalidExpressionException`. A fault code indicating that the expression specified is not valid.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:SearchDevicesRequest>
      <v1:expression>
        <v11:expression xsi:type="v11:SearchableExpression">
          <v11:searchable>
            <v11:key>OrganizationId</v11:key>
            <v11:categoryName>Device</v11:categoryName>
          </v11:searchable>
          <v11:operator>EQ</v11:operator>
          <v11:searchableValue xsi:type="v11:StringSearchableValue">
            <v11:value>1001</v11:value>
          </v11:searchableValue>
        </v11:expression>
      </v1:expression>
    </v1:SearchDevicesRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

```

        </v11:expression>
        <v11:groupingOperator>AND</v11:groupingOperator>
        <v11:searchType>com.twowire.dmc.model.Device</v11:searchType>
    </v11:expression>
    </v1:SearchDevicesRequest>
</soapenv:Body>
</soapenv:Envelope>

```

## Sample Response

```

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns4:SearchDevicesResponse xmlns:ns4="http://twowire.com/dmc/apps/nbiws/
    devicemgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0"
    xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0"
    xmlns:ns5="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0"
    xmlns:ns6="http://twowire.com/dmc/apps/nbiws/manufacturermgmt/v1_0"
    xmlns:ns7="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0"
    xmlns:ns8="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0"
    xmlns:ns9="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0">
      <ns4:resultCount>1</ns4:resultCount>
      <ns4:deviceId>1220</ns4:deviceId>
    </ns4:SearchDevicesResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```



## SetDeviceParameterValues

The `SetDeviceParameterValues` operation sets specified parameters on a single device. The system performs a CWMP connection request and waits (up to the time-out) for the device to connect and apply the requested changes.

### Request Parameters

`SetDeviceParameterValuesRequest` with the following elements:

- `deviceSelector`. A [DeviceSelector](#) value for the device that will be acted upon.
- `parameterNameValuePair`. A [NameValuePair](#) value for the parameter to be set on the device and its corresponding value. There can be more than one specified.
- `timeout`. A [TimeWithUnits](#) value for the amount of time in which the device can respond with the requested data before the request is terminated and a `TimeoutException` fault is returned.

### Response

`SetDeviceParameterValuesResponse` with the following element:

- `status`. The [string](#) value for the TR-069 status returned from the device in response to setting the parameter values. The following values are available:
  - COMMITTED
  - APPLIED\_NOT\_YET\_COMMITTED

### Fault Type Codes

`DeviceFaultedException`. A fault code indicating the device faulted during execution of a request (for example, if it returned an unexpected CWMP fault).

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

`TimeoutException`. A fault indicating a time-out occurred waiting for completion of a request.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:SetDeviceParameterValuesRequest>
```

```

    <v1:deviceSelector xsi:type="v11:SerialNumberAndOUIDeviceSelector">
      <v11:serialNumber>103122009532</v11:serialNumber>
      <v11:oui>00D09E</v11:oui>
    </v1:deviceSelector>
    <v1:parameterNameValuePair>
      <v11:name>InternetGatewayDevice.Time.NTPServer1</v11:name>
      <v11:value>pool.ntp.org</v11:value>
    </v1:parameterNameValuePair>
    <v1:timeout>
      <v11:value>30</v11:value>
      <v11:units>SECONDS</v11:units>
    </v1:timeout>
  </v1:SetDeviceParameterValuesRequest>
</soapenv:Body>
</soapenv:Envelope>

```

### Sample Response

```

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns5:SetDeviceParameterValuesResponse xmlns:ns5="http://twowire.com/dmc/
apps/nbiws/devicemgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/
base/v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0"
xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0"
xmlns:ns6="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0"
xmlns:ns7="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0"
xmlns:ns8="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0"
xmlns:ns9="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0">
      <ns5:status>COMMITTED</ns5:status>
    </ns5:SetDeviceParameterValuesResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

## CHAPTER 5

# Group Management Service

The operations in the Group Management Service are used to work with groups of managed devices.

The following operation is included in this service:

- [AddDevicesToStaticGroup](#)
- [CreateGroup](#)
- [DeleteGroup](#)
- [GetDeviceGroups](#)
- [GetGroupMembership](#)
- [GetGroups](#)
- [RemoveDevicesFromStaticGroup](#)
- [UpdateGroup](#)

## AddDevicesToStaticGroup

The `AddDevicesToStaticGroup` operation adds devices to a group with a set list of devices, rather than a group based on a search expression.

---

**Note** If the device specified is already in the group specified, CMS will not add the device or return an error.

---

### Request Parameters

`addDevicesToStaticGroupRequest` with the following elements:

- `groupSelector`. A [DeviceGroupSelector](#) value for the group to which the devices will be added. The group must resolve to a group with a set list of devices.
- `deviceSelector`. A [DeviceSelector](#) value for the devices to be selected and added to the group.

### Response

`addDevicesToStaticGroupResponse` with the following element:

- `deviceId`. An [EntityID](#) value for the internal ID of the device added to the specified group. This element is optional, and there can be more than one specified.

### Fault Type Codes

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

`NonStaticGroupException`. A fault code indicating that the group specified is not a static group.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0"
  xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:AddDevicesToStaticGroupRequest>
      <v1:groupSelector xsi:type="ns2:NameDeviceGroupSelector">
        <ns2:name>staticgroup1</ns2:name>
      </v1:groupSelector>
      <v1:deviceSelector xsi:type="ns2:SerialNumberAndOUIDeviceSelector">
        <ns2:serialNumber>103122009532</ns2:serialNumber>
        <ns2:oui>00D09E</ns2:oui>
      </v1:deviceSelector>
    </v1:AddDevicesToStaticGroupRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

```

    </v1:deviceSelector>
  </v1:AddDevicesToStaticGroupRequest>
</soapenv:Body>
</soapenv:Envelope>

```

### Sample Response

```

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns6:AddDevicesToStaticGroupResponse xmlns:ns6="http://twowire.com/dmc/
      apps/nbiws/groupmgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/
      base/v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0"
      xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0"
      xmlns:ns5="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
      xmlns:ns7="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0"
      xmlns:ns8="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0"
      xmlns:ns9="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0">
      <ns6:deviceId>1001</ns6:deviceId>
    </ns6:AddDevicesToStaticGroupResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

## CreateGroup

The `CreateGroup` operation creates a new group.

### Request Parameters

`createGroupRequest` with the following element:

- `group`. A `DeviceGroup` value for the group to create. Note that an entirely new group is created from the given object. Any IDs on objects passed in on the group's graph are ignored.

### Response

`createGroupResponse` with the following element:

- `id`. An `EntityID` value for the ID of the newly created group.

### Fault Type Codes

`GroupNameExistsException`. A fault code indicating that a group with the name specified already exists.

`InvalidExpressionException`. A fault code indicating that the expression used to identify the group members is not valid.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0"
  xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:CreateGroupRequest>
      <v1:group xsi:type="ns2:DynamicGroup">
        <ns2:name>test dynamic1</ns2:name>
        <ns2:description>test dynamic1 description</ns2:description>
        <ns2:rootExpression>
          <ns2:expression xsi:type="ns2:SearchableExpression">
            <ns2:searchable>
              <ns2:key>ManufacturerOUI</ns2:key>
              <ns2:categoryName>Device</ns2:categoryName>
            </ns2:searchable>
            <ns2:operator>EQ</ns2:operator>
            <ns2:searchableValue xsi:type="ns2:StringSearchableValue">
              <ns2:value>00D09E</ns2:value>
            </ns2:searchableValue>
          </ns2:expression>
          <ns2:groupingOperator>AND</ns2:groupingOperator>
          <ns2:searchType>com.twowire.dmc.model.Device</ns2:searchType>
        </ns2:rootExpression>
      </v1:group>
    </v1:CreateGroupRequest>
```

```

</soapenv:Body>
</soapenv:Envelope>

```

### Sample Response

```

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns6:CreateGroupResponse xmlns:ns6="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0"
      xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0"
      xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0"
      xmlns:ns5="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
      xmlns:ns7="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0"
      xmlns:ns8="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0"
      xmlns:ns9="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0">
      <ns6:id>1000</ns6:id>
    </ns6:CreateGroupResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

## DeleteGroup

The `DeleteGroup` operation deletes a group.

### Request Parameters

`DeleteGroupRequest` with the following element:

- `groupSelector`. A `DeviceGroupSelector` value for the group to be deleted.

### Response

This operation has no response.

### Fault Type Codes

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

`ReferenceExistsException`. A reference code indicating that the group cannot be deleted because other active entities within the system still refer to the group, such as scheduled workflows or data collection profiles.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0"
  xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1>DeleteGroupRequest>
      <v1:groupSelector xsi:type="ns2:NameDeviceGroupSelector">
        <ns2:name>test static1</ns2:name>
      </v1:groupSelector>
    </v1>DeleteGroupRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

### Sample Response

This operation has no response.



## GetDeviceGroups

The `GetDeviceGroups` operation retrieves the groups to which a device belongs.

### Request Parameters

`GetDeviceGroups` with the following element:

- `deviceSelector`. A `DeviceGroupSelector` value for the device for which the corresponding group membership should be returned.

### Response

`GetDeviceGroups` with the following element:

- `group`. A `DeviceGroup` value for the group to which the device belongs. This element is optional, and there can be more than one specified.

### Fault Type Codes

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  <soapenv:Body>
    <v1:GetDeviceGroupsRequest>
      <v1:deviceSelector xsi:type="ns2:SerialNumberAndOUIDeviceSelector">
        <ns2:serialNumber>204116022745</ns2:serialNumber>
        <ns2:oui>00D09E</ns2:oui>
      </v1:deviceSelector>
    </v1:GetDeviceGroupsRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

### Sample Response

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns7:GetDeviceGroupsResponse xmlns:ns7="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0" xmlns:ns10="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0" xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0">
```

```

xmlns:ns5="http://twowire.com/dmc/apps/nbiws/devicediagnostics/v1_0"
xmlns:ns6="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
xmlns:ns8="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0"
xmlns:ns9="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0">
  <ns7:group xsi:type="ns2:StaticGroup" xmlns:xsi="http://www.w3.org/
2001/XMLSchema-instance">
    <ns2:id>1023</ns2:id>
    <ns2:created>2009-07-22T13:52:58.052Z</ns2:created>
    <ns2:createdBy>nbiws</ns2:createdBy>
    <ns2:lastModified>2009-07-22T13:52:58.052Z</ns2:lastModified>
    <ns2:lastModifiedBy>nbiws</ns2:lastModifiedBy>
    <ns2:uuid>faad580076c611dea6d80a2506431f90</ns2:uuid>
    <ns2:name>Test Device Group</ns2:name>
  </ns7:group>
  <ns7:group xsi:type="ns2:DynamicGroup" xmlns:xsi="http://www.w3.org/
2001/XMLSchema-instance">
    <ns2:id>999</ns2:id>
    <ns2:created>2009-07-21T10:08:13.084Z</ns2:created>
    <ns2:createdBy>INSTALLER</ns2:createdBy>
    <ns2:lastModified>2009-07-21T10:08:13.084Z</ns2:lastModified>
    <ns2:lastModifiedBy>INSTALLER</ns2:lastModifiedBy>
    <ns2:uuid>999</ns2:uuid>
    <ns2:name>2wireDev</ns2:name>
    <ns2:description>2wireDev</ns2:description>
    <ns2:rootExpression>
      <ns2:id>998</ns2:id>
      <ns2:created>2009-07-21T10:08:13.053Z</ns2:created>
      <ns2:createdBy>INSTALLER</ns2:createdBy>
      <ns2:lastModified>2009-07-21T10:08:13.053Z</ns2:lastModified>
      <ns2:lastModifiedBy>INSTALLER</ns2:lastModifiedBy>
      <ns2:uuid>998</ns2:uuid>
      <ns2:expression xsi:type="ns2:SearchableExpression">
        <ns2:id>999</ns2:id>
        <ns2:created>2009-07-21T10:08:13.074Z</ns2:created>
        <ns2:createdBy>INSTALLER</ns2:createdBy>
        <ns2:lastModified>2009-07-21T10:08:13.074Z</
ns2:lastModified>
        <ns2:lastModifiedBy>INSTALLER</ns2:lastModifiedBy>
        <ns2:uuid>999</ns2:uuid>
        <ns2:searchable>
          <ns2:id>1003</ns2:id>
          <ns2:created>2009-07-21T10:08:10.074Z</ns2:created>
          <ns2:createdBy>INSTALLER</ns2:createdBy>
          <ns2:lastModified>2009-07-21T10:08:10.074Z</
ns2:lastModified>
          <ns2:lastModifiedBy>INSTALLER</ns2:lastModifiedBy>
          <ns2:uuid>1003</ns2:uuid>
          <ns2:key>ManufacturerOUI</ns2:key>
          <ns2:propertyPath>oui</ns2:propertyPath>
          <ns2:targetClass>java.lang.String</ns2:targetClass>
          <ns2:collection>>false</ns2:collection>
          <ns2:dateTime>>false</ns2:dateTime>
          <ns2:categoryName>Device</ns2:categoryName>
        </ns2:searchable>
        <ns2:operator>EQ</ns2:operator>
        <ns2:searchableValue xsi:type="ns2:StringSearchableValue">
          <ns2:id>999</ns2:id>

```

```
<ns2:created>2009-07-21T10:08:13.014Z</ns2:created>
<ns2:createdBy>INSTALLER</ns2:createdBy>
<ns2:lastModified>2009-07-21T10:08:13.014Z</
ns2:lastModified>
<ns2:lastModifiedBy>INSTALLER</ns2:lastModifiedBy>
<ns2:uuid>999</ns2:uuid>
<ns2:value>00D09E</ns2:value>
</ns2:searchableValue>
</ns2:expression>
<ns2:groupingOperator>AND</ns2:groupingOperator>
<ns2:searchType>com.twowire.dmc.model.Device</ns2:searchType>
</ns2:rootExpression>
</ns7:group>
</ns7:GetDeviceGroupsResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

## GetGroupMembership

The `GetGroupMembership` operation retrieves a list of the devices in a group.

### Request Parameters

`GetGroupMembershipRequest` with the following element:

- `groupSelector`. A [DeviceGroupSelector](#) value for the group for which the device membership will be returned.

### Response

`GetGroupMembershipResponse` with the following element:

- `deviceId`. An [EntityID](#) value for the internal ID of a device that is a member of the group. This element is optional, and there can be more than one specified.

### Fault Type Codes

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0"
  xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:GetGroupMembershipRequest>
      <v1:groupSelector xsi:type="ns2:NameDeviceGroupSelector">
        <ns2:name>test_dynamic1</ns2:name>
      </v1:groupSelector>
    </v1:GetGroupMembershipRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

### Sample Response

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns6:GetGroupMembershipResponse xmlns:ns6="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0" xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0">
```

```
xmlns:ns5="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"  
xmlns:ns7="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0"  
xmlns:ns8="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0"  
xmlns:ns9="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0">  
  <ns6:deviceId>1000</ns6:deviceId>  
</ns6:GetGroupMembershipResponse>  
</SOAP-ENV:Body>  
</SOAP-ENV:Envelope>
```

## GetGroups

The `GetGroups` operation returns a list of the groups that are currently defined.

### Request Parameters

`GetGroupsRequest`

### Response

`GetGroupsResponse` with the following element:

- `group`. A `DeviceGroup` value for the current groups defined in the system. This element is optional, and there can be more than one specified.

### Fault Type Codes

This operation has no defined fault codes.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0"
  <soapenv:Body>
    <v1:GetGroupsRequest/>
  </soapenv:Body>
</soapenv:Envelope>
```

### Sample Response

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns6:GetGroupsResponse xmlns:ns6="http://twowire.com/dmc/apps/nbiws/
groupmgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0"
xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0"
xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0"
xmlns:ns5="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
xmlns:ns7="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0"
xmlns:ns8="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0"
xmlns:ns9="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0">
      <ns6:group xsi:type="ns2:DynamicGroup" xmlns:xsi="http://www.w3.org/
2001/XMLSchema-instance">
        <ns2:id>1000</ns2:id>
        <ns2:created>2009-04-10T14:41:36.224Z</ns2:created>
        <ns2:createdBy>nbiws</ns2:createdBy>
        <ns2:lastModified>2009-04-10T14:41:36.224Z</ns2:lastModified>
        <ns2:lastModifiedBy>nbiws</ns2:lastModifiedBy>
        <ns2:uuid>affb0f8025dd11dea1790a250a311f90</ns2:uuid>
        <ns2:name>test dynamic1</ns2:name>
        <ns2:description>test dynamic1 description</ns2:description>
      </ns6:group>
    </ns6:GetGroupsResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

```

<ns2:rootExpression>
  <ns2:id>1000</ns2:id>
  <ns2:created>2009-04-10T14:41:36.218Z</ns2:created>
  <ns2:createdBy>nbiws</ns2:createdBy>
  <ns2:lastModified>2009-04-10T14:41:36.218Z</ns2:lastModified>
  <ns2:lastModifiedBy>nbiws</ns2:lastModifiedBy>
  <ns2:uuid>affb0f8125dd11dea1790a250a311f90</ns2:uuid>
  <ns2:expression xsi:type="ns2:SearchableExpression">
    <ns2:id>1001</ns2:id>
    <ns2:created>2009-04-10T14:41:36.221Z</ns2:created>
    <ns2:createdBy>nbiws</ns2:createdBy>
    <ns2:lastModified>2009-04-10T14:41:36.221Z</ns2:lastModified>
    <ns2:lastModifiedBy>nbiws</ns2:lastModifiedBy>
    <ns2:uuid>affb0f8225dd11dea1790a250a311f90</ns2:uuid>
    <ns2:searchable>
      <ns2:id>1003</ns2:id>
      <ns2:created>2009-04-10T08:25:13.346Z</ns2:created>
      <ns2:createdBy>INSTALLER</ns2:createdBy>
      <ns2:lastModified>2009-04-10T08:25:13.346Z</
      ns2:lastModified>
      <ns2:lastModifiedBy>INSTALLER</ns2:lastModifiedBy>
      <ns2:uuid>1003</ns2:uuid>
      <ns2:key>ManufacturerOUI</ns2:key>
      <ns2:propertyPath>oui</ns2:propertyPath>
      <ns2:targetClass>java.lang.String</ns2:targetClass>
      <ns2:collection>>false</ns2:collection>
      <ns2:dateTime>>false</ns2:dateTime>
      <ns2:categoryName>Device</ns2:categoryName>
    </ns2:searchable>
    <ns2:operator>EQ</ns2:operator>
    <ns2:searchableValue xsi:type="ns2:StringSearchableValue">
      <ns2:id>1000</ns2:id>
      <ns2:created>2009-04-10T14:41:36.219Z</ns2:created>
      <ns2:createdBy>nbiws</ns2:createdBy>
      <ns2:lastModified>2009-04-10T14:41:36.219Z</
      ns2:lastModified>
      <ns2:lastModifiedBy>nbiws</ns2:lastModifiedBy>
      <ns2:uuid>affb5da225dd11dea1790a250a311f90</ns2:uuid>
      <ns2:value>00D09E</ns2:value>
    </ns2:searchableValue>
  </ns2:expression>
  <ns2:groupingOperator>AND</ns2:groupingOperator>
  <ns2:searchType>com.twowire.dmc.model.Device</ns2:searchType>
</ns2:rootExpression>
</ns6:group>
</ns6:GetGroupsResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

## RemoveDevicesFromStaticGroup

The `RemoveDevicesFromStaticGroup` operation removes devices from a group with a set list of devices, rather than a group based on a search expression.

---

**Note** If the device specified is not in the group specified, CMS will not remove the device or return an error.

---

### Request Parameters

`RemoveDevicesFromStaticGroupRequest` with the following element:

- `groupSelector`. A [DeviceGroupSelector](#) value for the group from which the devices will be removed. The group must resolve to a group with a set list of devices.
- `deviceSelector`. A [DeviceSelector](#) value for the devices to be selected and removed from the group.

### Response

`RemoveDevicesFromStaticGroupResponse` with the following element:

- `deviceId`. An [EntityID](#) value for the internal IDs of the devices removed from the group. This element is optional, and there can be more than one specified.

### Fault Type Codes

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

`NonStaticGroupException`. A fault code indicating that the group specified is not a static group.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0"
  xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:RemoveDevicesFromStaticGroupRequest>
      <v1:groupSelector xsi:type="ns2:IdDeviceGroupSelector">
        <ns2:id>1001</ns2:id>
      </v1:groupSelector>
      <v1:deviceSelector xsi:type="ns2:IdDeviceSelector">
        <ns2:id>1001</ns2:id>
      </v1:deviceSelector>
    </v1:RemoveDevicesFromStaticGroupRequest>
  </soapenv:Body>
</soapenv:Envelope>
```



```

    </v1:RemoveDevicesFromStaticGroupRequest>
  </soapenv:Body>
</soapenv:Envelope>

```

### Sample Response

```

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns6:RemoveDevicesFromStaticGroupResponse xmlns:ns6="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0" xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0" xmlns:ns5="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0" xmlns:ns7="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0" xmlns:ns8="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0" xmlns:ns9="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0">
      <ns6:deviceId>1001</ns6:deviceId>
    </ns6:RemoveDevicesFromStaticGroupResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

## UpdateGroup

The `UpdateGroup` operation updates group information.

### Request Parameters

`UpdateGroupRequest` with the following elements:

- `groupSelector`. A `DeviceGroupSelector` value for the group to be updated.
- `group`. A `DeviceGroup` value for the updated group, the contents of which are applied to the group selected by the group selector.

### Response

This operation has no response.

### Fault Type Codes

`GroupNameExistsException`. A fault code indicating that the group specified already exists.

`InvalidExpressionException`. A fault code indicating that the expression used to identify the group is not valid.

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0"
  xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:UpdateGroupRequest>
      <v1:groupSelector xsi:type="ns2:NameDeviceGroupSelector">
        <ns2:name>test static1</ns2:name>
      </v1:groupSelector>
      <v1:group xsi:type="ns2:StaticGroup">
        <ns2:name>test static1</ns2:name>
        <ns2:description>test static1 description updated2</
          ns2:description>
      </v1:group>
    </v1:UpdateGroupRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

### Sample Response

This operation has no response.



## CHAPTER 6

# Scheduled Workflow Management Service

The operations in the Scheduled Workflow Management Service are used to work with scheduled workflows.

The following operations are included in this service:

- [CancelScheduledWorkflow](#)
- [CreateScheduledWorkflow](#)
- [GetActiveScheduledWorkflows](#)
- [GetActiveScheduledWorkflowSummaries](#)
- [GetScheduledWorkflow](#)
- [GetScheduledWorkflowSummary](#)
- [UpdateScheduledWorkflow](#)

## CancelScheduledWorkflow

The `CancelScheduledWorkflow` operation cancels a scheduled workflow. If the scheduled workflow is already terminated, this operation has no effect.

### Request Parameters

`CancelScheduledWorkflowRequest` with the following element:

- `scheduledWorkflowId`. An [EntityID](#) value for the internal ID of the scheduled workflow.

### Response

This operation has no response.

### Fault Type Codes

`NoSuchEntityException`. A fault code used to indicate that the entity being retrieved does not exist.

### Sample Request

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:v1="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0">
  <soapenv:Header/>
  <soapenv:Body>
    <v1:CancelScheduledWorkflowRequest>
      <v1:scheduledWorkflowId>1050</v1:scheduledWorkflowId>
    </v1:CancelScheduledWorkflowRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

### Sample Response

This operation has no response.

## CreateScheduledWorkflow

The `CreateScheduledWorkflow` operation creates a new scheduled workflow.

---

**Note** Only firmware upgrade workflows are supported.

---

### Request Parameters

`CreateScheduledWorkflowRequest` with the following element:

- `scheduledWorkflow`. A [ScheduledWorkflow](#) value for the schedule to create. The active flag of the scheduled workflow must be `true`.

### Response

`CreateScheduledWorkflowResponse` with the following element:

- `id`. An [EntityID](#) value for the ID of the newly created scheduled workflow.

### Fault Type Codes

`InvalidScheduleException`. A fault code indicating that the scheduled workflow specified is not valid.

`InvalidWorkflowParameterException`. A fault code indicating that an invalid workflow parameter was included in the scheduled workflow's parameters.

`NoSuchEntityException`. A fault code used to indicate that the entity being retrieved does not exist.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/scheduledworkflowngmt/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1>CreateScheduledWorkflowRequest>
      <v1:scheduledWorkflow>
        <v1:description>Test SW</v1:description>
        <v1:active>true</v1:active>
        <v1:deactivationReason>completed</v1:deactivationReason>
        <v1:deactivated>2009-04-27T15:05:32.220Z</v1:deactivated>
        <v1:maxDevicesPerOccurrence>5</v1:maxDevicesPerOccurrence>
        <v1:enforceOncePerDevice>true</v1:enforceOncePerDevice>
        <v1:deactivateWhenNoDevicesAreSelected>>false</
v1:deactivateWhenNoDevicesAreSelected>
        <v1:schedule xsi:type="v11:CronRecurringSchedule">
          <v11:startOn>2009-02-01</v11:startOn>
          <!-- <v11:endOn>2009-02-04</v11:endOn> -->
          <v11:cronExpression>0 0/5 * * * ?</v11:cronExpression>
        </v1:schedule>
        <v1:workflowDefinitionName>1003</v1:workflowDefinitionName>
      </v1:scheduledWorkflow>
    </v1>CreateScheduledWorkflowRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

```

    <v1:deviceGroupId>999</v1:deviceGroupId>
    <v1:executionWindow>
      <v11:value>1</v11:value>
      <v11:units>MINUTES</v11:units>
    </v1:executionWindow>
    <v1:parameterValue>
      <v1:actionName>requestReboot</v1:actionName>
      <v1:parameterName>commandKey</v1:parameterName>
      <v1:value xsi:type="v11:SimpleWorkflowParameterValue">
        <v11:value>1234567890</v11:value>
      </v1:value>
    </v1:parameterValue>
  </v1:scheduledWorkflow>
</v1:CreateScheduledWorkflowRequest>
</soapenv:Body>
</soapenv:Envelope>

```

### Sample Response

```

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns7:CreateScheduledWorkflowResponse xmlns:ns7="http://twowire.com/dmc/
apps/nbiws/scheduledworkflowmgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/
apps/nbiws/base/v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/
auditmgmt/v1_0" xmlns:ns4="http://twowire.com/dmc/apps/nbiws/
configurationmgmt/v1_0" xmlns:ns5="http://twowire.com/dmc/apps/nbiws/
devicemgmt/v1_0" xmlns:ns6="http://twowire.com/dmc/apps/nbiws/groupmgmt/
v1_0" xmlns:ns8="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0"
xmlns:ns9="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0">
      <ns7:id>1001</ns7:id>
    </ns7:CreateScheduledWorkflowResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```



## GetActiveScheduledWorkflows

The `GetActiveScheduledWorkflows` operation retrieves the set of active scheduled workflows defined in the system.

### Request Parameters

`GetActiveScheduledWorkflowsRequest`

### Response

`GetActiveScheduledWorkflowsResponse` with the following element:

- `scheduledWorkflow`. A [ScheduledWorkflow](#) value for an active, scheduled workflow. This element is optional, and there can be more than one specified.

### Fault Type Codes

This operation has no defined fault codes.

### Sample Request

```
<soapenv:Envelope
xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  <soapenv:Body>
    <v1:GetActiveScheduledWorkflowsRequest/>
  </soapenv:Body>
</soapenv:Envelope>
```

### Sample Response

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns8:GetActiveScheduledWorkflowsResponse xmlns:ns8="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0" xmlns:ns10="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0" xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0" xmlns:ns5="http://twowire.com/dmc/apps/nbiws/devicediagnostics/v1_0" xmlns:ns6="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0" xmlns:ns7="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0" xmlns:ns9="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0">
      <ns8:scheduledWorkflow>
        <ns2:id>1016</ns2:id>
        <ns2:created>2009-07-13T13:54:54.501Z</ns2:created>
        <ns2:createdBy>nbiws</ns2:createdBy>
        <ns2:lastModified>2009-07-13T13:54:54.501Z</ns2:lastModified>
        <ns2:lastModifiedBy>nbiws</ns2:lastModifiedBy>
        <ns2:uuid>b958e2206fb411de914b0a2506431f90</ns2:uuid>
        <ns8:description>Test Firmware Upgrade</ns8:description>
        <ns8:active>true</ns8:active>
      </ns8:scheduledWorkflow>
    </SOAP-ENV:Body>
  </SOAP-ENV:Envelope>
```

```

<ns8:maxDevicesPerOccurrence>100</ns8:maxDevicesPerOccurrence>
<ns8:enforceOncePerDevice>true</ns8:enforceOncePerDevice>
<ns8:deactivateWhenNoDevicesAreSelected>true</
ns8:deactivateWhenNoDevicesAreSelected>
<ns8:schedule xsi:type="ns2:CronRecurringSchedule" xmlns:xsi="http://
www.w3.org/2001/XMLSchema-instance">
  <ns2:id>1014</ns2:id>
  <ns2:created>2009-07-13T13:54:54.494Z</ns2:created>
  <ns2:createdBy>nbiws</ns2:createdBy>
  <ns2:lastModified>2009-07-13T13:54:54.494Z</ns2:lastModified>
  <ns2:lastModifiedBy>nbiws</ns2:lastModifiedBy>
  <ns2:uuid>b959cc816fb411de914b0a2506431f90</ns2:uuid>
  <ns2:startOn>2009-09-01Z</ns2:startOn>
  <ns2:cronExpression>0 0 3 * * ?</ns2:cronExpression>
</ns8:schedule>
<ns8:workflowDefinitionName>Firmware Download</
ns8:workflowDefinitionName>
<ns8:deviceGroupId>1069</ns8:deviceGroupId>
<ns8:abortPolicy xsi:type="ns2:FailureRateScheduleAbortPolicy"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <ns2:failureRate>5.0</ns2:failureRate>
</ns8:abortPolicy>
<ns8:executionWindow>
  <ns2:value>30</ns2:value>
  <ns2:units>MINUTES</ns2:units>
</ns8:executionWindow>
</ns8:scheduledWorkflow>
</ns8:GetActiveScheduledWorkflowsResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

## GetActiveScheduledWorkflowSummaries

The `GetActiveScheduledWorkflowSummaries` operation retrieves summaries of the set of active scheduled workflows defined in the system.

### Request Parameters

`GetActiveScheduledWorkflowSummariesRequest`

### Response

`GetActiveScheduledWorkflowSummariesResponse` with the following elements:

- `scheduledWorkflowSummary`. A [ScheduledWorkflowSummary](#) value for the summary of an active, scheduled workflow. This element is optional, and there can be more than one specified.

### Fault Type Codes

This operation has no defined fault codes.

### Sample Request

```
<soapenv:Envelope
xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  <soapenv:Body>
    <v1:GetActiveScheduledWorkflowSummariesRequest/>
  </soapenv:Body>
</soapenv:Envelope>
```

### Sample Response

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns8:GetActiveScheduledWorkflowSummariesResponse xmlns:ns8="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0" xmlns:ns10="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0" xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0" xmlns:ns5="http://twowire.com/dmc/apps/nbiws/devicediagnostics/v1_0" xmlns:ns6="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0" xmlns:ns7="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0" xmlns:ns9="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0">
      <ns8:scheduledWorkflowSummary>
        <ns8:scheduledWorkflow>
          <ns2:id>1016</ns2:id>
          <ns2:created>2009-07-13T13:54:54.501Z</ns2:created>
          <ns2:createdBy>nbiws</ns2:createdBy>
          <ns2:lastModified>2009-07-13T13:54:54.501Z</ns2:lastModified>
          <ns2:lastModifiedBy>nbiws</ns2:lastModifiedBy>
          <ns2:uuid>b958e2206fb411de914b0a2506431f90</ns2:uuid>
        </ns8:scheduledWorkflow>
      </ns8:scheduledWorkflowSummary>
    </SOAP-ENV:Body>
  </SOAP-ENV:Envelope>
```

```

<ns8:description>Test Firmware Upgrade</ns8:description>
<ns8:active>true</ns8:active>
<ns8:maxDevicesPerOccurrence>100</ns8:maxDevicesPerOccurrence>
<ns8:enforceOncePerDevice>true</ns8:enforceOncePerDevice>
<ns8:deactivateWhenNoDevicesAreSelected>true</
ns8:deactivateWhenNoDevicesAreSelected>
<ns8:schedule xsi:type="ns2:CronRecurringSchedule"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <ns2:id>1014</ns2:id>
  <ns2:created>2009-07-13T13:54:54.494Z</ns2:created>
  <ns2:createdBy>nbiws</ns2:createdBy>
  <ns2:lastModified>2009-07-13T13:54:54.494Z</
ns2:lastModified>
  <ns2:lastModifiedBy>nbiws</ns2:lastModifiedBy>
  <ns2:uuid>b959cc816fb411de914b0a2506431f90</ns2:uuid>
  <ns2:startOn>2009-09-01Z</ns2:startOn>
  <ns2:cronExpression>0 0 3 * * ?</ns2:cronExpression>
</ns8:schedule>
<ns8:workflowDefinitionName>Firmware Download</
ns8:workflowDefinitionName>
<ns8:deviceGroupId>1069</ns8:deviceGroupId>
<ns8:abortPolicy xsi:type="ns2:FailureRateScheduleAbortPolicy"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <ns2:failureRate>5.0</ns2:failureRate>
</ns8:abortPolicy>
<ns8:executionWindow>
  <ns2:value>30</ns2:value>
  <ns2:units>MINUTES</ns2:units>
</ns8:executionWindow>
</ns8:scheduledWorkflow>
<ns8:devicesProcessed>0</ns8:devicesProcessed>
<ns8:devicesRemaining>0</ns8:devicesRemaining>
<ns8:completed>0</ns8:completed>
<ns8:failed>0</ns8:failed>
<ns8:canceled>0</ns8:canceled>
</ns8:scheduledWorkflowSummary>
</ns8:GetActiveScheduledWorkflowSummariesResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

## GetScheduledWorkflow

The `GetScheduledWorkflow` operation retrieves a specific scheduled workflow by internal ID, regardless of its status.

### Request Parameters

`GetScheduledWorkflowRequest` with the following element:

- `scheduledWorkflowId`. An [EntityID](#) value for the internal ID of the scheduled workflow.

### Response

`GetScheduledWorkflowResponse` with the following element:

- `scheduledWorkflow`. A [ScheduledWorkflow](#) value the requested scheduled workflow.

### Fault Type Codes

`NoSuchEntityException`. A fault code used to indicate that the entity being retrieved does not exist.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:GetScheduledWorkflowRequest>
      <v1:scheduledWorkflowId>1018</v1:scheduledWorkflowId>
    </v1:GetScheduledWorkflowRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

### Sample Response

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns8:GetScheduledWorkflowResponse xmlns:ns8="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0" xmlns:ns10="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0" xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0" xmlns:ns5="http://twowire.com/dmc/apps/nbiws/devicediagnostics/v1_0" xmlns:ns6="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0" xmlns:ns7="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0" xmlns:ns9="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0">
      <ns8:scheduledWorkflow>
        <ns2:id>1018</ns2:id>
        <ns2:created>2009-04-27T15:05:32.220Z</ns2:created>
        <ns2:createdBy>nbiws</ns2:createdBy>
      </ns8:scheduledWorkflow>
    </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

```

<ns2:lastModified>2009-04-27T15:05:32.220Z</ns2:lastModified>
<ns2:lastModifiedBy>nbiws</ns2:lastModifiedBy>
<ns2:uuid>d822d7b0333c11de89b50a2506431f90</ns2:uuid>
<ns8:description>Test SW</ns8:description>
<ns8:active>true</ns8:active>
<ns8:maxDevicesPerOccurrence>5</ns8:maxDevicesPerOccurrence>
<ns8:enforceOncePerDevice>true</ns8:enforceOncePerDevice>
<ns8:deactivateWhenNoDevicesAreSelected>false</
ns8:deactivateWhenNoDevicesAreSelected>
<ns8:schedule xsi:type="ns2:CronRecurringSchedule"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <ns2:id>1016</ns2:id>
  <ns2:created>2009-04-27T15:05:32.217Z</ns2:created>
  <ns2:createdBy>nbiws</ns2:createdBy>
  <ns2:lastModified>2009-04-27T15:05:32.217Z</ns2:lastModified>
  <ns2:lastModifiedBy>nbiws</ns2:lastModifiedBy>
  <ns2:uuid>d822fec1333c11de89b50a2506431f90</ns2:uuid>
  <ns2:startOn>2009-02-01Z</ns2:startOn>
  <ns2:cronExpression>0 0/5 * * * ?</ns2:cronExpression>
</ns8:schedule>
<ns8:workflowDefinitionId>1003</ns8:workflowDefinitionId>
<ns8:deviceGroupId>999</ns8:deviceGroupId>
<ns8:executionWindow>
  <ns2:value>1</ns2:value>
  <ns2:units>MINUTES</ns2:units>
</ns8:executionWindow>
</ns8:scheduledWorkflow>
</ns8:GetScheduledWorkflowResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

## GetScheduledWorkflowSummary

The `GetScheduledWorkflowSummary` operation retrieves a specific workflow summary by internal ID, regardless of whether it is currently active.

### Request Parameters

`GetScheduledWorkflowSummaryRequest` with the following element:

- `scheduledWorkflowId`. An [EntityID](#) value for the internal ID of the scheduled workflow.

### Response

`GetScheduledWorkflowSummaryResponse` with the following element:

- `scheduledWorkflowSummary`. A [ScheduledWorkflow](#) value for the summary of the requested scheduled workflow.

### Fault Type Codes

`NoSuchEntityException`. A fault code used to indicate that the entity being retrieved does not exist.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:GetScheduledWorkflowSummaryRequest>
      <v1:scheduledWorkflowId>1000</v1:scheduledWorkflowId>
    </v1:GetScheduledWorkflowSummaryRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

### Sample Response

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns7:GetScheduledWorkflowSummaryResponse xmlns:ns7="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0" xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0" xmlns:ns5="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0" xmlns:ns6="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0" xmlns:ns8="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0" xmlns:ns9="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0">
      <ns7:scheduledWorkflowSummary>
        <ns7:scheduledWorkflow>
          <ns2:id>1000</ns2:id>
          <ns2:created>2009-04-10T15:15:40.678Z</ns2:created>
        </ns7:scheduledWorkflow>
      </ns7:scheduledWorkflowSummary>
    </SOAP-ENV:Body>
  </SOAP-ENV:Envelope>
```

```

<ns2:createdBy>nbiws</ns2:createdBy>
<ns2:lastModified>2009-04-10T15:15:40.678Z</ns2:lastModified>
<ns2:lastModifiedBy>nbiws</ns2:lastModifiedBy>
<ns2:uuid>728f8ae025e211dea1790a250a311f90</ns2:uuid>
<ns7:description>Test SW</ns7:description>
<ns7:active>true</ns7:active>
<ns7:maxDevicesPerOccurrence>5</ns7:maxDevicesPerOccurrence>
<ns7:enforceOncePerDevice>true</ns7:enforceOncePerDevice>
<ns7:deactivateWhenNoDevicesAreSelected>>false</
ns7:deactivateWhenNoDevicesAreSelected>
<ns7:schedule xsi:type="ns2:CronRecurringSchedule"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <ns2:id>1000</ns2:id>
  <ns2:created>2009-04-10T15:15:40.672Z</ns2:created>
  <ns2:createdBy>nbiws</ns2:createdBy>
  <ns2:lastModified>2009-04-10T17:31:03.291Z</
ns2:lastModified>
  <ns2:lastModifiedBy>nbiws</ns2:lastModifiedBy>
  <ns2:uuid>72909c5025e211dea1790a250a311f90</ns2:uuid>
  <ns2:startOn>2009-02-01Z</ns2:startOn>
  <ns2:cronExpression>0 0/5 * * * ?</ns2:cronExpression>
</ns7:schedule>
<ns7:workflowDefinitionId>1003</ns7:workflowDefinitionId>
<ns7:deviceGroupId>999</ns7:deviceGroupId>
<ns7:executionWindow>
  <ns2:value>1</ns2:value>
  <ns2:units>MINUTES</ns2:units>
</ns7:executionWindow>
</ns7:scheduledWorkflow>
<ns7:devicesProcessed>1</ns7:devicesProcessed>
<ns7:devicesRemaining>0</ns7:devicesRemaining>
<ns7:completed>0</ns7:completed>
<ns7:failed>0</ns7:failed>
<ns7:canceled>0</ns7:canceled>
</ns7:scheduledWorkflowSummary>
</ns7:GetScheduledWorkflowSummaryResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```



## UpdateScheduledWorkflow

The `UpdateScheduledWorkflow` operation updates an existing scheduled workflow.

### Request Parameters

`UpdateScheduledWorkflowRequest` with the following element:

- `scheduledWorkflow`. A [ScheduledWorkflow](#) value for the schedule to update. The active flag of the scheduled workflow must be set to true. The ID must be specified.

### Response

This operation has no response.

### Fault Type Codes

`InvalidScheduleException`. A fault code indicating that the scheduled workflow specified is not valid.

`InvalidWorkflowParameterException`. A fault code indicating that an invalid workflow parameter was included in the scheduled workflow's parameters.

`NoSuchEntityException`. A fault code used to indicate that the entity being retrieved does not exist.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:UpdateScheduledWorkflowRequest>
      <v1:scheduledWorkflow>
        <v11:id>1000</v11:id>
        <v1:description>Test SW</v1:description>
        <v1:active>true</v1:active>
        <v1:maxDevicesPerOccurrence>5</v1:maxDevicesPerOccurrence>
        <v1:enforceOncePerDevice>true</v1:enforceOncePerDevice>
        <v1:deactivateWhenNoDevicesAreSelected>false</
v1:deactivateWhenNoDevicesAreSelected>
        <v1:schedule xsi:type="v11:CronRecurringSchedule">
          <v11:startOn>2009-02-01</v11:startOn>
          <!-- <v11:endOn>2009-02-04</v11:endOn> -->
          <v11:cronExpression>0 0/10 * * * ?</v11:cronExpression>
        </v1:schedule>
        <v1:workflowDefinitionId>1003</v1:workflowDefinitionId>
        <v1:deviceGroupId>999</v1:deviceGroupId>
        <v1:executionWindow>
          <v11:value>1</v11:value>
          <v11:units>MINUTES</v11:units>
        </v1:executionWindow>
      </v1:scheduledWorkflow>
    </v1:UpdateScheduledWorkflowRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

```
<v1:parameterValue>
  <v1:actionName>requestReboot</v1:actionName>
  <v1:parameterName>commandKey</v1:parameterName>
  <v1:value xsi:type="v11:SimpleWorkflowParameterValue">
    <v11:value>1234567890</v11:value>
  </v1:value>
</v1:parameterValue>
</v1:scheduledWorkflow>
</v1:UpdateScheduledWorkflowRequest>
</soapenv:Body>
</soapenv:Envelope>
```

### Sample Response

This operation has no response.

## CHAPTER 7

# Subscriber Management Service

The operations in the Subscriber Management Service are used to manage subscriber information, device association, and the services associated with a subscriber's account.

The following operations are included in this service:

- [AddOrModifyService](#)
- [AssociateDeviceToSubscriber](#)
- [CreateSubscriber](#)
- [DeleteService](#)
- [DeleteSubscriber](#)
- [DissociateDeviceFromSubscriber](#)
- [GetSubscriber](#)
- [GetSubscriberIdentifierNames](#)
- [UpdateSubscriber](#)

## AddOrModifyService

The `AddOrModifyService` operation adds a new or modifies an existing service for a subscriber.

### Request Parameters

`AddOrModifyServiceRequest` with the following elements:

- `subscriberSelector`. A [SubscriberSelector](#) value for the subscriber to be acted upon.
- `service`. A [string](#) value for the name of the service to add or modify.
- `serviceProvisioningDetail`. A [ServiceProvisioningDetail](#) value for the provisioning details for the service. In the case of modifying an existing service, any existing provisioning details associated with the modified service are deleted. This element is optional.

### Response

`AddOrModifyServiceResponse` with the following element:

- `added`. A [boolean](#) value for whether the service was added (true) or modified (false).

### Fault Type Codes

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`InvalidServiceException`. A fault code indicating that no such service is defined.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:AddOrModifyServiceRequest>
      <v1:subscriberSelector xsi:type="v1:IdSubscriberSelector">
        <v1:id>1000</v1:id>
      </v1:subscriberSelector>
      <v1:service>test service</v1:service>
      <v1:serviceProvisioningDetail
        xsi:type="v1:KeyValueServiceProvisioningDetail">
        <v1:service>test service</v1:service>
      </v1:serviceProvisioningDetail>
    </v1:AddOrModifyServiceRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

```

    <v1:configurationKeyValue>
      <v1:key>pppUsername</v1:key>
      <v1:value>user1</v1:value>
    </v1:configurationKeyValue>
    <v1:configurationKeyValue>
      <v1:key>pppPassword</v1:key>
      <v1:value>user1pass</v1:value>
    </v1:configurationKeyValue>
  </v1:serviceProvisioningDetail>
</v1:AddOrModifyServiceRequest>
</soapenv:Body>
</soapenv:Envelope>

```

### Sample Response

```

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns8:AddOrModifyServiceResponse xmlns:ns8="http://twowire.com/dmc/apps/
nbiws/subscribermgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/
base/v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0"
xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0"
xmlns:ns5="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
xmlns:ns6="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0"
xmlns:ns7="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0"
xmlns:ns9="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0">
      <ns8:added>true</ns8:added>
    </ns8:AddOrModifyServiceResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

## AssociateDeviceToSubscriber

The `AssociateDeviceToSubscriber` operation associates a subscriber and a device. Any applicable services defined for the subscriber will be provisioned to the device.

### Request Parameters

`AssociateDeviceToSubscriberRequest` with the following elements:

- `subscriberSelector`. A `SubscriberSelector` value for the subscriber to be acted upon.
- `deviceSelector`. A `DeviceSelector` value for the device to be acted upon.

### Response

This operation has no response.

### Fault Type Codes

`DeviceAlreadyAssociatedWithSubscriberException`. A fault code indicating that the device is already associated with the subscriber.

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

---

**Note** The fault message for the `InvalidSelectorException`, `MultipleEntitiesMatchedSelectorException`, and `NoEntityMatchedSelectorException` fault type codes provides details about whether the fault applies to the subscriber or the device.

---

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Header/>
  <soapenv:Body>
    <v1:AssociateDeviceToSubscriberRequest>
      <v1:subscriberSelector xsi:type="v1:IdSubscriberSelector">
        <v1:id>1000</v1:id>
      </v1:subscriberSelector>
      <v1:deviceSelector xsi:type="v11:ExpressionDeviceSelector">
        <v11:expression>
          <v11:expression xsi:type="v11:SearchableExpression">
            <v11:searchable>
              <v11:key>SerialNumber</v11:key>
            </v11:searchable>
          </v11:expression>
        </v11:expression>
      </v1:deviceSelector>
    </v1:AssociateDeviceToSubscriberRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

```
        <v11:categoryName>Device</v11:categoryName>
      </v11:searchable>
      <v11:operator>EQ</v11:operator>
      <v11:searchableValue xsi:type="v11:StringSearchableValue">
        <v11:value>204116022749</v11:value>
      </v11:searchableValue>
    </v11:expression>
    <v11:groupingOperator>AND</v11:groupingOperator>
    <v11:searchType>com.twowire.dmc.model.Device</v11:searchType>
  </v11:expression>
</v1:deviceSelector>
</v1:AssociateDeviceToSubscriberRequest>
</soapenv:Body>
</soapenv:Envelope>
```

### Sample Response

This operation has no response.

## CreateSubscriber

The `CreateSubscriber` operation creates a new subscriber having the given unique identifier values.

### Request Parameters

`CreateSubscriberRequest` with the following element:

- `identifierValue`. A [NameValuePair](#) value for the subscriber identifier name-value pair. The name portion of the pair must be present in the set of identifier names returned by [GetSubscriberIdentifierNames](#). There can be more than one specified.
- `subscriberDetail`. A [SubscriberDetail](#) value for the optional subscriber details to be stored within the system, such as account billing address. This element is optional, and there can be more than one specified.

### Response

`CreateSubscriberResponse` with the following element:

- `subscriberId`. An [EntityID](#) value for the internal ID of the created subscriber.

### Fault Type Codes

`SubscriberExistsException`. A fault code indicating that the subscriber specified already exists.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:CreateSubscriberRequest>
      <v1:identifierValue>
        <v11:name>Account Number</v11:name>
        <v11:value>111222334</v11:value>
      </v1:identifierValue>
      <v1:identifierValue>
        <v11:name>Phone Number</v11:name>
        <v11:value>111222335</v11:value>
      </v1:identifierValue>
    </v1:CreateSubscriberRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

### Sample Response

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
```



```
<ns8:CreateSubscriberResponse xmlns:ns8="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0" xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0" xmlns:ns5="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0" xmlns:ns6="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0" xmlns:ns7="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0" xmlns:ns9="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0">
  <ns8:subscriberId>1000</ns8:subscriberId>
</ns8:CreateSubscriberResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

## DeleteService

The `DeleteService` operation deletes an existing service from a subscriber. As a result, the service is de-provisioned from any associated devices to which the service is already provisioned.

### Request Parameters

`DeleteServiceRequest` with the following elements:

- `subscriberSelector`. A [SubscriberSelector](#) value for the subscriber to be acted upon.
- `service`. A [string](#) value for the name of the service to delete.

### Response

`DeleteServiceResponse` with the following element:

- `deleted`. A [boolean](#) value for whether the service was deleted (true) or the subscriber did not have the specified service (false).

### Fault Type Codes

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`InvalidServiceException`. A fault code indicating that no such service is defined.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0">
  <soapenv:Body>
    <v1>DeleteServiceRequest>
      <v1:subscriberSelector xsi:type="v1:IdSubscriberSelector">
        <v1:id>1001</v1:id>
      </v1:subscriberSelector>
      <v1:service>test service</v1:service>
    </v1>DeleteServiceRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

### Sample Response

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
```

```
<ns8:DeleteServiceResponse xmlns:ns8="http://twowire.com/dmc/apps/nbiws/
subscribermgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0"
xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0"
xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0"
xmlns:ns5="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
xmlns:ns6="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0"
xmlns:ns7="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0"
xmlns:ns9="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0">
  <ns8:deleted>true</ns8:deleted>
</ns8:DeleteServiceResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

## DeleteSubscriber

The `deleteSubscriber` operation dissociates a subscriber and its devices, resets the state of the Device record to a pristine condition suitable for reuse with a different subscriber, and runs any deprovisioning activities for services associated with the subscriber, and deletes the subscriber.

### Request Parameters

`DeleteSubscriberRequest` with the following element:

- `subscriberSelector`. A [SubscriberSelector](#) value for the subscriber to be acted upon.

### Response

This operation has no response.

### Fault Type Codes

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1>DeleteSubscriberRequest>
      <v1:subscriberSelector xsi:type="v1:IdSubscriberSelector">
        <v1:id>1000</v1:id>
      </v1:subscriberSelector>
    </v1>DeleteSubscriberRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

### Sample Response

This operation has no response.

## DissociateDeviceFromSubscriber

The `DissociateDeviceFromSubscriber` operation dissociates a subscriber and device. It resets the state of the Device record to a pristine condition suitable for reuse with a different subscriber and runs any deprovisioning activities for services associated with the subscriber. Any existing subscriber association is cleared (dissociated) by this request.

### Request Parameters

`DissociateDeviceFromSubscriberRequest` with the following elements:

- `subscriberSelector`. A [SubscriberSelector](#) value for the subscriber to be acted upon.
- `deviceSelector`. A [DeviceSelector](#) value for the device to be acted upon.

### Response

This operation has no response.

### Fault Type Codes

`DeviceNotAssociatedWithSubscriberException`. A fault code indicating that the device is not associated with the subscriber specified.

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

---

**Note** The fault message for the `InvalidSelectorException`, `MultipleEntitiesMatchedSelectorException`, and `NoEntityMatchedSelectorException` fault type codes provides details about whether the fault applies to the subscriber or the device.

---

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Header/>
  <soapenv:Body>
    <v1:DissociateDeviceFromSubscriberRequest>
      <v1:subscriberSelector xsi:type="v1:IdSubscriberSelector">
        <v1:id>1000</v1:id>
      </v1:subscriberSelector>
    </v1:DissociateDeviceFromSubscriberRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

```
<v1:deviceSelector xsi:type="v11:SerialNumberAndOUIDeviceSelector">
  <v11:serialNumber>204116022745</v11:serialNumber>
  <v11:oui>00D09E</v11:oui>
</v1:deviceSelector>
</v1:DissociateDeviceFromSubscriberRequest>
</soapenv:Body>
</soapenv:Envelope>
```

### Sample Response

This operation has no response.

## GetSubscriber

The `GetSubscriber` operation retrieves a subscriber, including its complete set of subscriber identifier values and provisioned service details.

### Request Parameters

`GetSubscriberRequest` with the following element:

- `subscriberSelector`. A [SubscriberSelector](#) value for the subscriber to be returned.

### Response

`GetSubscriberResponse` with the following element:

- `subscriber`. A [SubscriberReference](#) value for the corresponding subscriber entity.

### Fault Type Codes

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0">
  <soapenv:Body>
    <v1:GetSubscriberRequest>
      <v1:subscriberSelector xsi:type="v1:IdSubscriberSelector">
        <v1:id>1000</v1:id>
      </v1:subscriberSelector>
    </v1:GetSubscriberRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

### Sample Response

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns8:GetSubscriberResponse xmlns:ns8="http://twowire.com/dmc/apps/nbiws/
  subscribermgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/
  v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0"
  xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0"
  xmlns:ns5="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
  xmlns:ns6="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0">
```

```

xmlns:ns7="http://twowire.com/dmc/apps/nbiws/scheduledworkflomgmt/v1_0"
xmlns:ns9="http://twowire.com/dmc/apps/nbiws/workflomgmt/v1_0">
  <ns8:subscriber>
    <ns2:id>1000</ns2:id>
    <ns2:created>2009-04-10T15:22:11.625Z</ns2:created>
    <ns2:createdBy>nbiws</ns2:createdBy>
    <ns2:lastModified>2009-04-10T15:22:11.625Z</ns2:lastModified>
    <ns2:lastModifiedBy>nbiws</ns2:lastModifiedBy>
    <ns2:uuid>5b8c9f8025e311deal790a250a311f90</ns2:uuid>
    <ns8:identifierValue>
      <ns2:name>Phone Number</ns2:name>
      <ns2:value>111222335</ns2:value>
    </ns8:identifierValue>
    <ns8:identifierValue>
      <ns2:name>Account Number</ns2:name>
      <ns2:value>111222334</ns2:value>
    </ns8:identifierValue>
    <ns8:service>test service</ns8:service>
    <ns8:serviceProvisioningDetail
      xsi:type="ns8:KeyValueServiceProvisioningDetail" xmlns:xsi="http://
      /www.w3.org/2001/XMLSchema-instance">
      <ns2:id>1000</ns2:id>
      <ns2:created>2009-04-13T13:34:16.365Z</ns2:created>
      <ns2:createdBy>nbiws</ns2:createdBy>
      <ns2:lastModified>2009-04-13T13:34:16.365Z</ns2:lastModified>
      <ns2:lastModifiedBy>nbiws</ns2:lastModifiedBy>
      <ns2:uuid>c759ab10282f11deal790a250a311f90</ns2:uuid>
      <ns8:service>test service</ns8:service>
      <ns8:configurationKeyValue>
        <ns8:key>pppUsername</ns8:key>
        <ns8:value>user1</ns8:value>
      </ns8:configurationKeyValue>
      <ns8:configurationKeyValue>
        <ns8:key>pppPassword</ns8:key>
        <ns8:value>user1pass</ns8:value>
      </ns8:configurationKeyValue>
    </ns8:serviceProvisioningDetail>
  </ns8:subscriber>
</ns8:GetSubscriberResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```



## GetSubscriberIdentifierNames

The `GetSubscriberIdentifierNames` operation retrieves the set of identifier keys defined in the system. The set of identifier keys can be used in the name-value pairs specified when creating or updating a subscriber.

### Request Parameters

`GetSubscriberIdentifierNamesRequest`

### Response

`GetSubscriberIdentifierNamesResponse` with the following element:

- `identifierName`. A [string](#) value for the unique identifier key. This element is optional, and there can be more than one specified.

### Fault Type Codes

This operation has no defined fault codes.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:GetSubscriberIdentifierNamesRequest/>
  </soapenv:Body>
</soapenv:Envelope>
```

### Sample Response

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns8:GetSubscriberIdentifierNamesResponse xmlns:ns8="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0" xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0" xmlns:ns5="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0" xmlns:ns6="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0" xmlns:ns7="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0" xmlns:ns9="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0">
      <ns8:identifierName>Phone Number</ns8:identifierName>
      <ns8:identifierName>Account Number</ns8:identifierName>
    </ns8:GetSubscriberIdentifierNamesResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

## UpdateSubscriber

The `UpdateSubscriber` operation updates the unique identifier values for a subscriber.

### Request Parameters

`UpdateSubscriberRequest` with the following elements:

- `subscriberSelector`. A `SubscriberSelector` value for the subscriber to be acted upon.
- `updatedIdentifierValue`. A `NameValuePair` value for the updated identifier name-value pair. This element is optional, and there can be more than one specified.
- `replaceIdentifierValues`. A `boolean` value for whether the specified identifier values should replace the existing subscriber identifiers or simply augment them (for example, add to and possibly overwrite existing identifiers having the same name as a given identifier). If true, at least one `updatedIdentifierValue` element must be present.
- `updatedSubscriberDetail`. A `SubscriberDetail` value for an optional subscriber detail to be stored within the system, such as account billing address. This element is optional, and there can be more than one specified.
- `replaceSubscriberDetails`. A `boolean` value for whether the specified subscriber details should replace the existing subscriber details, or simply augment them (for example, add to and possibly replace existing details having the same key as a given detail).

### Response

This operation has no response.

### Fault Type Codes

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

`SubscriberExistsException`. A fault code indicating that the subscriber already exists.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:UpdateSubscriberRequest>
```

```

<v1:subscriberSelector xsi:type="v1:IdSubscriberSelector">
  <v1:id>1001</v1:id>
</v1:subscriberSelector>
<v1:updatedIdentifierValue>
  <v11:name>Account Number</v11:name>
  <v11:value>9000001</v11:value>
</v1:updatedIdentifierValue>
<v1:updatedIdentifierValue>
  <v11:name>Phone Number</v11:name>
  <v11:value>111-222-3344</v11:value>
</v1:updatedIdentifierValue>
</v1:UpdateSubscriberRequest>
<v1:replaceIdentifierValues>false</v1:replaceIdentifierValues>
<v1:replaceSubscriberDetails>false</v1:replaceSubscriberDetails>
</soapenv:Body>
</soapenv:Envelope>

```

### Sample Response

This operation has no response.



## CHAPTER 8

# Twowire Management Service

The operations in the Twowire Management Service enable CMS to communicate with managed devices.

The following operations are included in this service:

- [CreateWebSession](#)
- [DeviceDNSQuery](#)
- [DeviceDSL.Diagnostics](#)
- [DeviceHttpGetTest](#)
- [DeviceIPPing](#)
- [DeviceTraceRoute](#)
- [FactoryResetRemoteBridge](#)
- [GetDeviceHPNAPerf](#)
- [RebootRemoteBridge](#)

## CreateWebSession

The `CreateWebSession` operation creates a web session on a single device.

### Request Parameters

`CreateWebSessionRequest` with the following elements:

- `deviceSelector`. A `DeviceSelector` value for the device that will be acted upon.
- `absoluteTimeOut`. A `TimeWithUnits` value for the absolute time-out for the web session created on the device.
- `idleTimeOut`. A `TimeWithUnits` value for the idle time-out for the web session created on the device.
- `logId`. A `string` value for the logging identifier used by the device to track activity within the context of the created session. It must be 64 or fewer characters in length.
- `realm`. A `string` value for the realm to which to authenticate. Valid values include `TechRead` and `TechWrite`.
- `timeout`. A `TimeWithUnits` value for the amount of time in which the device can respond with the requested data before the request is terminated and a `TimeoutException` fault is returned.

### Response

`CreateWebSessionResponse` with the following element:

- `url`. A `string` value for the URL for the session on the device.

### Fault Type Codes

`DeviceFaultedException`. A fault code indicating the device faulted during execution of a request (for example, if it returned an unexpected CWMP fault).

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

`TimeoutException`. A fault indicating a time-out occurred waiting for completion of a request.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/ext/twowire/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1>CreateWebSessionRequest>
```

```

    <v1:deviceSelector
      xsi:type="v11:SerialNumberAndOUIDeviceSelector">
      <v11:serialNumber>210812992372</v11:serialNumber>
      <v11:oui>00D09E</v11:oui>
    </v1:deviceSelector>
    <v1:absoluteTimeout>
      <v11:value>5</v11:value>
      <v11:units>MINUTES</v11:units>
    </v1:absoluteTimeout>
    <v1:idleTimeout>
      <v11:value>5</v11:value>
      <v11:units>MINUTES</v11:units>
    </v1:idleTimeout>
    <v1:logId>Test1</v1:logId>
    <v1:realm>TechWrite</v1:realm>
    <v1:timeout>
      <v11:value>60</v11:value>
      <v11:units>SECONDS</v11:units>
    </v1:timeout>
  </v1:CreateWebSessionRequest>
</soapenv:Body>
</soapenv:Envelope>

```

### Sample Response

```

<SOAP-ENV:Envelope
  xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns3:CreateWebSessionResponse
      xmlns:ns3="http://twowire.com/dmc/apps/nbiws/ext/twowire/v1_0"
      xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0">
      <ns3:url>https://10.37.10.140:51001/?session3174427805=WA-286814311-
        2933917683</ns3:url>
    </ns3:CreateWebSessionResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

## DeviceDNSQuery

The `DeviceDNSQuery` operation retrieves the IP address for a given host name from a single device to test name resolution from the device.

### Request Parameters

`DeviceDNSQueryRequest` with the following elements:

- `deviceSelector`. A `DeviceSelector` value for the device that will be acted upon.
- `hostname`. A `string` value for the host name for which a DNS query should be performed.
- `timeout`. A `TimeWithUnits` value for the amount of time in which the device can respond with the requested data before the request is terminated and a `TimeoutException` fault is returned.

### Response

`DeviceDNSQueryResponse` with the following element:

- `ipAddress`. A `string` value for the IP address corresponding to the host name given in the DNS query request.

### Fault Type Codes

`DeviceFaultedException`. A fault code indicating the device faulted during execution of a request (for example, if it returned an unexpected CWMP fault).

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

`TimeoutException`. A fault indicating a time-out occurred waiting for completion of a request.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/ext/twowire/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:DeviceDNSQueryRequest>
      <v1:deviceSelector xsi:type="v11:SerialNumberAndOUIDeviceSelector">
        <v11:serialNumber>103122009532</v11:serialNumber>
        <v11:oui>00D09E</v11:oui>
      </v1:deviceSelector>
      <v1:hostname>www.2Wire.com</v1:hostname>
    </v1:DeviceDNSQueryRequest>
  </soapenv:Body>
</soapenv:Envelope>
```



```

    <v1:timeout>
      <v11:value>15</v11:value>
      <v11:units>SECONDS</v11:units>
    </v1:timeout>
  </v1:DeviceDNSQueryRequest>
</soapenv:Body>
</soapenv:Envelope>

```

## Sample Response

```

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns3:DeviceDNSQueryResponse xmlns:ns3="http://twowire.com/dmc/apps/nbiws/ext/twowire/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0">
      <ns3:ipAddress>216.52.29.100</ns3:ipAddress>
    </ns3:DeviceDNSQueryResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

## DeviceDSLiagnostics

The `DeviceDSLiagnostics` operation performs a DSL diagnostics test on a single device.

### Request Parameters

`DeviceDSLiagnosticsRequest` with the following elements:

- `deviceSelector`. A `DeviceSelector` value for the device that will be acted upon.
- `timeout`. A `TimeWithUnits` value for the amount of time in which the device can respond with the requested data before the request is terminated and a `TimeoutException` fault is returned.

### Response

`DeviceDSLiagnosticsResponse` with the following elements:

- `status`. A `DeviceDSLiagnosticsStatus` value for the status of the DSL diagnostics performed on the device.
- `failureDetails`. A `string` value for the details about the possible cause of a failure, if the diagnostics status indicates failure. This element is optional.

### Fault Type Codes

`DeviceFaultedException`. A fault code indicating the device faulted during execution of a request (for example, if it returned an unexpected CWMP fault).

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

`TimeoutException`. A fault indicating a time-out occurred waiting for completion of a request.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/ext/twowire/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:DeviceDSLiagnosticsRequest>
      <v1:deviceSelector xsi:type="v11:SerialNumberAndOUIDeviceSelector">
        <v11:serialNumber>103122009532</v11:serialNumber>
        <v11:oui>00D09E</v11:oui>
      </v1:deviceSelector>
    </v1:DeviceDSLiagnosticsRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

```

    <v1:timeout>
      <v11:value>15</v11:value>
      <v11:units>SECONDS</v11:units>
    </v1:timeout>
  </v1:DeviceDSLiagnosticsRequest>
</soapenv:Body>
</soapenv:Envelope>

```

## Sample Response

```

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns3:DeviceDSLiagnosticsResponse xmlns:ns3="http://twowire.com/dmc/apps/
nbiws/ext/twowire/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/
base/v1_0">
      <ns3:status>SUCCESS</ns3:status>
    </ns3:DeviceDSLiagnosticsResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

## DeviceHttpGetTest

The `DeviceHttpGetTest` operation performs an HTTP GET of the specified URL from a given device.

### Request Parameters

`DeviceHttpGetTestRequest` with the following elements:

- `deviceSelector`. A `DeviceSelector` value for the device that will be acted upon.
- `url`. A `string` value for the URL to retrieve from the device.
- `httpGetTimeout`. A `TimeWithUnits` value for the time-out to be applied to the HTTP GET request.
- `timeout`. A `TimeWithUnits` value for the amount of time in which the device can respond with the requested data before the request is terminated and a `TimeoutException` fault is returned.

### Response

`DeviceHttpGetTestResponse` with the following element:

- `downloadTime`. An `unsignedInt` value for the time taken to download the contents at the URL, in milliseconds.

### Fault Type Codes

`DeviceFaultedException`. A fault code indicating the device faulted during execution of a request (for example, if it returned an unexpected CWMP fault).

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

`TimeoutException`. A fault indicating a time-out occurred waiting for completion of a request.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/ext/twowire/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:DeviceHttpGetTestRequest>
      <v1:deviceSelector xsi:type="v11:SerialNumberAndOUIDeviceSelector">
        <v11:serialNumber>204116023116</v11:serialNumber>
        <v11:oui>00D09E</v11:oui>
      </v1:deviceSelector>
    </v1:DeviceHttpGetTestRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

```

    <v1:timeout>
      <v11:value>15</v11:value>
      <v11:units>SECONDS</v11:units>
    </v1:timeout>
    <v1:url>http://www.2Wire.com</v1:url>
    <v1:httpGetTimeout>
      <v11:value>10</v11:value>
      <v11:units>SECONDS</v11:units>
    </v1:httpGetTimeout>
  </v1:DeviceHttpGetTestRequest>
</soapenv:Body>
</soapenv:Envelope>

```

### Sample Response

```

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns3:DeviceHttpGetTestResponse xmlns:ns3="http://twowire.com/dmc/apps/nbiws/ext/twowire/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0">
      <ns3:downloadTime>582</ns3:downloadTime>
    </ns3:DeviceHttpGetTestResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

## DeviceIPing

The `DeviceIPing` operation retrieves the results of an IP Ping request for a single device.

### Request Parameters

`DeviceIPingRequest` with the following elements:

- `deviceSelector`. A `DeviceSelector` value for the device that will be acted upon.
- `interfaceParameterName`. A `string` value for the interface on the device that should perform the IP ping.
- `hostOrAddressToPing`. A `string` value for the host name or address the device should ping.
- `numberOfRepetitions`. An `unsignedInt` value for the number of times to perform the ping request.
- `pingTimeout`. A `TimeWithUnits` value for the time-out to be applied to the ping requests performed on the device.
- `dataBlockSize`. An `int` value for the data block size to use for the ping requests.
- `diffServCodePoint`. An `int` value for the DiffServ code point for marking packets transmitted in the test.
- `timeout`. A `TimeWithUnits` value for the amount of time in which the device can respond with the requested data before the request is terminated and a `TimeoutException` fault is returned.

### Response

`DeviceIPingResponse` with the following elements:

- `successCount`. An `unsignedInt` value for the number of successful ping attempts.
- `failureCount`. An `unsignedInt` value for the number of failed ping attempts.
- `avgResponseTimeMillis`. An `unsignedInt` value for the average ping response time, in milliseconds.
- `minResponseTimeMillis`. An `unsignedInt` value for the minimum ping response time, in milliseconds.
- `maxResponseTimeMillis`. An `unsignedInt` value for the maximum ping response time, in milliseconds.

### Fault Type Codes

`DeviceFaultedException`. A fault code indicating the device faulted during execution of a request (for example, if it returned an unexpected CWMP fault).

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

NoEntityMatchedException. A fault code indicating no entity matched the selector's criteria.

TimeoutException. A fault indicating a time-out occurred waiting for completion of a request.

## Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/ext/twowire/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:DeviceIPPingRequest>
      <v1:deviceSelector xsi:type="v11:SerialNumberAndOUIDeviceSelector">
        <v11:serialNumber>204116023116</v11:serialNumber>
        <v11:oui>00D09E</v11:oui>
      </v1:deviceSelector>
      <v1:interfaceParameterName>eth0</v1:interfaceParameterName>
      <v1:hostOrAddressToPing>www.2Wire.com</v1:hostOrAddressToPing>
      <v1:numberOfRepetitions>2</v1:numberOfRepetitions>
      <v1:pingTimeout>
        <v11:value>3</v11:value>
        <v11:units>SECONDS</v11:units>
      </v1:pingTimeout>
      <v1:dataBlockSize>1</v1:dataBlockSize>
      <v1:diffServCodePoint>0</v1:diffServCodePoint>
      <v1:timeout>
        <v11:value>20</v11:value>
        <v11:units>SECONDS</v11:units>
      </v1:timeout>
    </v1:DeviceIPPingRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

## Sample Response

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns3:DeviceIPPingResponse xmlns:ns3="http://twowire.com/dmc/apps/nbiws/
  ext/twowire/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/
  v1_0">
      <ns3:successCount>2</ns3:successCount>
      <ns3:failureCount>1</ns3:failureCount>
      <ns3:avgResponseTimeMillis>30</ns3:avgResponseTimeMillis>
      <ns3:minResponseTimeMillis>25</ns3:minResponseTimeMillis>
      <ns3:maxResponseTimeMillis>40</ns3:maxResponseTimeMillis>
    </ns3:DeviceIPPingResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

## DeviceTraceRoute

The `DeviceTraceRoute` operation retrieves the results of performing a trace route for a single device.

### Request Parameters

`DeviceTraceRouteRequest` with the following elements:

- `deviceSelector`. A `DeviceSelector` value for the device that will be acted upon.
- `host`. A `string` value for the host on which to perform the trace route, from the device.
- `port`. An `int` value for the base UDP port number used in probes.
- `numHops`. An `unsignedInt` value for the maximum ttl (hop limit) used in outgoing probe packets.
- `numQueries`. An `unsignedInt` value for the desired number of probe queries.
- `dataBlockSize`. An `int` value for the data block size to use for the trace route requests.
- `traceRouteTimeout`. A `TimeWithUnits` value for the time-out to be applied to the trace route request performed on the device.
- `timeout`. A `TimeWithUnits` value for the amount of time in which the device can respond with the requested data before the request is terminated and a `TimeoutException` fault is returned.

### Response

`DeviceTraceRouteResponse` with the following element:

- `traceRouteResults`. A `string` value for the results of the trace route from the device.

### Fault Type Codes

`DeviceFaultedException`. A fault code indicating the device faulted during execution of a request (for example, if it returned an unexpected CWMP fault).

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

`TimeoutException`. A fault indicating a time-out occurred waiting for completion of a request.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  <soapenv:Body>
```



```

<v1:DeviceTraceRouteRequest>
  <v1:deviceSelector xsi:type="v11:SerialNumberAndOUIDeviceSelector">
    <v11:serialNumber>210812992372</v11:serialNumber>
    <v11:oui>00D09E</v11:oui>
  </v1:deviceSelector>
  <v1:host>www.2wire.com</v1:host>
  <v1:port>33434</v1:port>
  <v1:numHops>30</v1:numHops>
  <v1:numQueries>3</v1:numQueries>
  <v1:dataBlockSize>576</v1:dataBlockSize>
  <v1:traceRouteTimeout>
    <v11:value>4000</v11:value>
    <v11:units>MILLISECONDS</v11:units>
  </v1:traceRouteTimeout>
  <v1:timeout>
    <v11:value>15</v11:value>
    <v11:units>SECONDS</v11:units>
  </v1:timeout>
</v1:DeviceTraceRouteRequest>
</soapenv:Body>
</soapenv:Envelope>

```

## Sample Response

```

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns3:DeviceTraceRouteResponse xmlns:ns3="http://twowire.com/dmc/apps/nbiws/ext/twowire/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/v1_0">
      <ns3:traceRouteResults>traceroute 216.52.29.100 with 576 packetsize
        1: 10.37.110.1 28 ms
        2: 10.37.0.21 28 ms
        3: 63.97.38.193 27 ms
        4: 500.mfr25.gw4.dfw7.alter.net (157.130.155.237) 46 ms
        5: 0.so-7-1-2.x13.dfw7.alter.net (152.63.101.162) 48 ms
        6: 0.so-5-1-0.x13.sjc7.alter.net (152.63.0.150) 96 ms
        7: internap-sjc-gw.customer.alter.net (157.130.195.90) 100 ms
        8: border1.t7-1-bbnet1.sje.pnap.net (66.151.144.4) 98 ms
        9: 2wire-2.border1.sje.pnap.net (66.151.145.218) 101 ms
        10: 216.52.29.100 107 ms</ns3:traceRouteResults>
    </ns3:DeviceTraceRouteResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

## FactoryResetRemoteBridge

The `FactoryResetRemoteBridge` operation performs a factory reset on a selected remote bridge.

### Request Parameters

`FactoryResetRemoteBridgeRequest` with the following element:

- `remoteBridgeSelector`. A [DependentDeviceSelector](#) value for the remote bridge that will be acted upon.

### Response

This operation has no response.

### Fault Type Codes

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/ext/twowire/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:FactoryResetRemoteBridgeRequest>
      <v1:remoteBridgeSelector
        xsi:type="v1:DeviceAndPathDependentDeviceSelector">
        <v1:deviceSelector
          xsi:type="v11:SerialNumberAndOUIDeviceSelector">
            <v11:serialNumber>103122009532</v11:serialNumber>
            <v11:oui>00D09E</v11:oui>
          </v1:deviceSelector>
          <v1:path>InternetGatewayDevice.Services.X_00D09E_RemoteBridgeService.1
        </v1:path>
        </v1:remoteBridgeSelector>
      </v1:FactoryResetRemoteBridgeRequest>
    </soapenv:Body>
  </soapenv:Envelope>
```

### Sample Response

This operation has no response.

## GetDeviceHPNAPerf

The `GetDeviceHPNAPerf` operation retrieves the HPNA performance data for a single device.

### Request Parameters

`GetDeviceHPNAPerfRequest` with the following elements:

- `deviceSelector`. A [DeviceSelector](#) value for the device that will be acted upon.
- `interfaceName`. A [string](#) value for the name of the interface on the device for which the HPNA performance data is retrieved.
- `timeout`. A [TimeWithUnits](#) value for the amount of time in which the device can respond with the requested data before the request is terminated and a `TimeoutException` fault is returned.

### Response

`GetDeviceHPNAPerfResponse` with the following elements:

- `previousStart`. A [dateTime](#) value for the start time for the previous interval. When automatic collection is enabled, that is, `SampleInterval` is non-zero, the previous interval started two automatic samples ago. When automatic collection is disabled, that is, `SampleInterval` is zero, the previous interval started three manual samples ago. This element is optional.
- `previousEnd`. A [dateTime](#) value for the end time for the previous interval. When automatic collection is enabled, that is, `SampleInterval` is non-zero, the previous interval ended at the most recent automatic sample. When automatic collection is disabled, that is, `SampleInterval` is zero, the previous interval ended two manual samples ago. This element is optional.
- `currentStart`. A [dateTime](#) value for the start time for the current interval. When automatic collection is enabled, that is, `SampleInterval` is non-zero, the current interval started at the most recent automatic sample. When automatic collection is disabled, that is, `SampleInterval` is zero, the current interval started two manual samples ago. This element is optional.
- `currentEnd`. A [dateTime](#) value for the end time for the current interval. When automatic collection is enabled, that is, `SampleInterval` is non-zero, the current interval ended at the most recent manual sample since the most recent automatic sample. If there has been no such manual sample, the current interval is empty. When automatic collection is disabled, that is, `SampleInterval` is zero, the current interval ended at the most recent manual sample. This element is optional.
- `timestamp`. A [dateTime](#) value for the time at which channel data was last collected. This element is optional.
- `channel`. An [HPNAChannel](#) value for the HPNA channel information returned from a device. This element is optional, and there can be more than one specified.

- `previousNode`. An `HPNANode` value for the HPNA information for the previous node as of a point in time for a given MAC address. This element is optional, and there can be more than one specified.
- `currentNode`. An `HPNANode` value for the HPNA information for the current node as of a point in time for a given MAC address. This element is optional, and there can be more than one specified.

## Fault Type Codes

`DeviceFaultedException`. A fault code indicating the device faulted during execution of a request (for example, if it returned an unexpected CWMP fault).

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

`TimeoutException`. A fault indicating a time-out occurred waiting for completion of a request.

## Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/ext/twowire/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:GetDeviceHPNAPerfRequest>
      <v1:deviceSelector xsi:type="v11:SerialNumberAndOUIDeviceSelector">
        <v11:serialNumber>270711164805</v11:serialNumber>
        <v11:oui>00D09E</v11:oui>
      </v1:deviceSelector>
      <v1:interfaceName>InternetGatewayDevice.LANDevice.1.X_00D09E_HPNAv3Int
        erfaceConfig.2.</v1:interfaceName>
      <v1:timeout>
        <v11:value>15</v11:value>
        <v11:units>SECONDS</v11:units>
      </v1:timeout>
    </v1:GetDeviceHPNAPerfRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

## Sample Response

---

**Note** The following is an excerpt from the response.

---

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
```

```

<ns3:GetDeviceHPNAPerfResponse xmlns:ns3="http://twowire.com/dmc/apps/
nbiws/ext/twowire/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/
base/v1_0">
  <ns3:previousStart>2009-05-27T19:01:42Z</ns3:previousStart>
  <ns3:previousEnd>2009-05-27T19:16:44Z</ns3:previousEnd>
  <ns3:currentStart>2009-05-27T19:16:44Z</ns3:currentStart>
  <ns3:currentEnd>2009-05-27T19:29:47Z</ns3:currentEnd>
  <ns3:timestamp>2009-05-27T19:29:47Z</ns3:timestamp>
  <ns3:previousNode>
    <ns3:macAddress>00:1B:5B:77:E8:69</ns3:macAddress>
    <ns3:packetsSent>92</ns3:packetsSent>
    <ns3:packetsReceived>92</ns3:packetsReceived>
    <ns3:bytesSent>7434</ns3:bytesSent>
    <ns3:bytesReceived>7226</ns3:bytesReceived>
    <ns3:broadcastPacketsSent>0</ns3:broadcastPacketsSent>
    <ns3:broadcastPacketsReceived>0</ns3:broadcastPacketsReceived>
    <ns3:multicastPacketsSent>0</ns3:multicastPacketsSent>
    <ns3:multicastPacketsReceived>0</ns3:multicastPacketsReceived>
    <ns3:packetsCrcErrored>0</ns3:packetsCrcErrored>
    <ns3:packetsCrcErroredHost>0</ns3:packetsCrcErroredHost>
    <ns3:packetsShortErrored>0</ns3:packetsShortErrored>
    <ns3:rxPacketsDropped>0</ns3:rxPacketsDropped>
    <ns3:packetsShortHost>0</ns3:packetsShortHost>
    <ns3:txPacketsDropped>0</ns3:txPacketsDropped>
    <ns3:controlRequestLocal>92</ns3:controlRequestLocal>
    <ns3:controlReplyLocal>92</ns3:controlReplyLocal>
    <ns3:controlRequestRemote>0</ns3:controlRequestRemote>
    <ns3:controlReplyRemote>0</ns3:controlReplyRemote>
    <ns3:packetsSentWire>0</ns3:packetsSentWire>
    <ns3:broadcastPacketsSentWire>0</ns3:broadcastPacketsSentWire>
    <ns3:multicastPacketsSentWire>0</ns3:multicastPacketsSentWire>
    <ns3:packetsInternalControl>0</ns3:packetsInternalControl>
    <ns3:broadcastPacketsInternalControl>0</
ns3:broadcastPacketsInternalControl>
    <ns3:packetsReceivedQueued>0</ns3:packetsReceivedQueued>
    <ns3:packetsReceivedForwardUnknown>0</
ns3:packetsReceivedForwardUnknown>
    <ns3:nodeUtilization>0</ns3:nodeUtilization>
  </ns3:previousNode>
  <ns3:currentNode>
    <ns3:macAddress>00:1B:5B:77:E8:69</ns3:macAddress>
    <ns3:packetsSent>184</ns3:packetsSent>
    <ns3:packetsReceived>184</ns3:packetsReceived>
    <ns3:bytesSent>14868</ns3:bytesSent>
    <ns3:bytesReceived>14452</ns3:bytesReceived>
    <ns3:broadcastPacketsSent>0</ns3:broadcastPacketsSent>
    <ns3:broadcastPacketsReceived>0</ns3:broadcastPacketsReceived>
    <ns3:multicastPacketsSent>0</ns3:multicastPacketsSent>
    <ns3:multicastPacketsReceived>0</ns3:multicastPacketsReceived>
    <ns3:packetsCrcErrored>0</ns3:packetsCrcErrored>
    <ns3:packetsCrcErroredHost>0</ns3:packetsCrcErroredHost>
    <ns3:packetsShortErrored>0</ns3:packetsShortErrored>
    <ns3:rxPacketsDropped>0</ns3:rxPacketsDropped>
    <ns3:packetsShortHost>0</ns3:packetsShortHost>
    <ns3:txPacketsDropped>0</ns3:txPacketsDropped>
    <ns3:controlRequestLocal>184</ns3:controlRequestLocal>
    <ns3:controlReplyLocal>184</ns3:controlReplyLocal>

```

```
<ns3:controlRequestRemote>0</ns3:controlRequestRemote>
<ns3:controlReplyRemote>0</ns3:controlReplyRemote>
<ns3:packetsSentWire>0</ns3:packetsSentWire>
<ns3:broadcastPacketsSentWire>0</ns3:broadcastPacketsSentWire>
<ns3:multicastPacketsSentWire>0</ns3:multicastPacketsSentWire>
<ns3:packetsInternalControl>0</ns3:packetsInternalControl>
<ns3:broadcastPacketsInternalControl>0</
ns3:broadcastPacketsInternalControl>
<ns3:packetsReceivedQueued>0</ns3:packetsReceivedQueued>
<ns3:packetsReceivedForwardUnknown>0</
ns3:packetsReceivedForwardUnknown>
<ns3:nodeUtilization>0</ns3:nodeUtilization>
</ns3:currentNode>
</ns3:GetDeviceHPNAPerfResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

## RebootRemoteBridge

The `RebootRemoteBridge` operation reboots a selected remote bridge.

### Request Parameters

`RebootRemoteBridgeRequest` with the following element:

- `remoteBridgeSelector`. A [DependentDeviceSelector](#) value for the remote bridge that will be acted upon.

### Response

This operation has no response.

### Fault Type Codes

`InvalidSelectorException`. A fault code indicating the selector is invalid. Depending on the specific selector, this may mean an issue such as a malformed expression or invalid criteria.

`MultipleEntitiesMatchedSelectorException`. A fault code indicating multiple entities matched the selector's criteria, although the underlying operation required a single match.

`NoEntityMatchedSelectorException`. A fault code indicating no entity matched the selector's criteria.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/ext/twowire/v1_0"
  xmlns:v11="http://twowire.com/dmc/apps/nbiws/base/v1_0">
  <soapenv:Body>
    <v1:RebootRemoteBridgeRequest>
      <v1:remoteBridgeSelector
        xsi:type="v1:DeviceAndPathDependentDeviceSelector">
        <v1:deviceSelector
          xsi:type="v11:SerialNumberAndOUIDeviceSelector">
          <v11:serialNumber>210812992372</v11:serialNumber>
          <v11:oui>00D09E</v11:oui>
        </v1:deviceSelector>
        <v1:path>InternetGatewayDevice.Services.X_00D09E_RemoteBridgeService.1</v1:path>
      </v1:remoteBridgeSelector>
    </v1:RebootRemoteBridgeRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

### Sample Response

This operation has no response.





## CHAPTER 9

# Workflow Management Service

The operations in the Workflow Management Service are used to manage workflows that enable CMS to interact with managed devices.

The following operation is included in this service:

- [GetWorkflows](#)

## GetWorkflows

The `GetWorkflows` operation retrieves the set of workflows defined in the system.

### Request Parameters

`GetWorkflowsRequest`. Requests the set of workflows.

### Response

`GetWorkflowsResponse` with the following element:

- `workflow`. A [WorkflowDefinition](#) value for the current workflow defined in the system. This element is optional, and there can be more than one specified.

### Fault Type Codes

This operation has no defined fault codes.

### Sample Request

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:v1="http://twowire.com/dmc/apps/nbiws/workflowmgmt/v1_0">
  <soapenv:Body>
    <v1:GetWorkflowsRequest/>
  </soapenv:Body>
</soapenv:Envelope>
```

### Sample Response

**Note** The following is an excerpt from the response.

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns9:GetWorkflowsResponse xmlns:ns9="http://twowire.com/dmc/apps/nbiws/
      workflowmgmt/v1_0" xmlns:ns2="http://twowire.com/dmc/apps/nbiws/base/
      v1_0" xmlns:ns3="http://twowire.com/dmc/apps/nbiws/auditmgmt/v1_0"
      xmlns:ns4="http://twowire.com/dmc/apps/nbiws/configurationmgmt/v1_0"
      xmlns:ns5="http://twowire.com/dmc/apps/nbiws/devicemgmt/v1_0"
      xmlns:ns6="http://twowire.com/dmc/apps/nbiws/groupmgmt/v1_0"
      xmlns:ns7="http://twowire.com/dmc/apps/nbiws/scheduledworkflowmgmt/v1_0"
      xmlns:ns8="http://twowire.com/dmc/apps/nbiws/subscribermgmt/v1_0">
      <ns9:workflow>
        <ns2:id>1000</ns2:id>
        <ns2:created>2009-04-10T08:25:13.442Z</ns2:created>
        <ns2:createdBy>INSTALLER</ns2:createdBy>
        <ns2:lastModified>2009-04-10T13:26:49.015Z</ns2:lastModified>
        <ns2:lastModifiedBy>INSTALLER</ns2:lastModifiedBy>
        <ns2:uuid>1000</ns2:uuid>
        <ns2:name>Default Inform Workflow</ns2:name>
```

```

<ns2:description>Default response handler for CWMP inform
messages</ns2:description>
<ns2:workflowXml><![CDATA[<?xml version="1.0" encoding="UTF-8"?>
<process-definition name="Default Inform Workflow">
<start-state>
<transition to="workState" />
</start-state>
<end-state name="workState">
<event type="node-enter">
<spring-action name="processInformRequest" bean-
name="informActionHandler"/>
</event>
</end-state>
</process-definition>]]></ns2:workflowXml>
<ns2:active>true</ns2:active>
<ns2:userVisible>>false</ns2:userVisible>
</ns9:workflow>
</ns9:GetWorkflowsResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```



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