

IBM SPSS Collaboration and Deployment Services
Version 8 Release 2

*Content Repository Service
Developer's Guide*

IBM

Note

Before using this information and the product it supports, read the information in "Notices" on page 141.

Product Information

This edition applies to version 8, release 2, modification 1 of IBM SPSS Collaboration and Deployment Services and to all subsequent releases and modifications until otherwise indicated in new editions.

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Chapter 1. Introduction to web services

What are web services?

At a high level, a web service is a set of functionality distributed across a network (LAN or the Internet) using a common communication protocol. The web service serves as an intermediary between an application and its clients, providing both a standardized information structure and a standardized communication protocol for interaction between the two.

Where other methods of distributed application architecture rely on a single programming language being used on both the application and its clients, a web service allows the use of loosely coupled services between non-homogenous platforms and languages. This provides a non-architecture-specific approach allowing, for example, Java services to communicate with C# clients, or vice versa.

Advantages to implementing application functionality as web services include the following:

- Software written in different languages (Java or C#) running on different platforms (UNIX or Windows) can exchange services and data
- Application functionality can be accessed by a variety of clients. For example, both a thin-client interface and a rich-client interface can take advantage of the web service operations.
- Updates to the service are immediately available to all service clients

Web service system architecture

Web services are deployed and made publicly available using an application server, such as WebSphere® or JBoss Application Server. The published web services are hosted by this application server to handle application requests, access permissions, and process load. A high-level architecture of how web services are implemented is displayed in the following diagram.

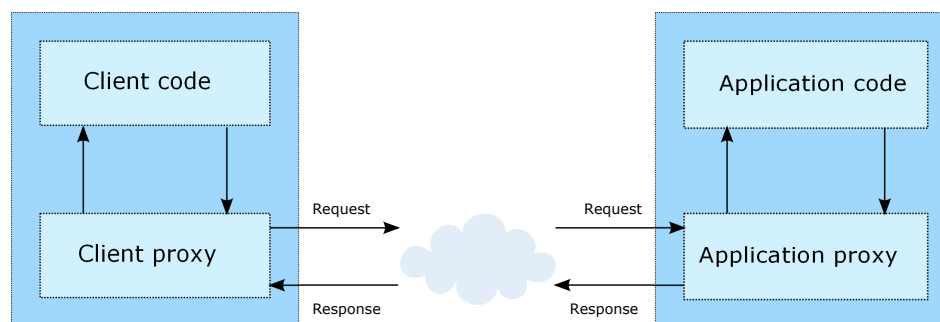


Figure 1. Web service architecture

The client code supplies input to an operation offered by a proxy class. The proxy class generates a request containing a standardized representation of the input and sends it across the network to the application. A proxy class on the server receives the request and unmarshals the contents into objects for processing by the application. Upon completing the operation, the application supplies a proxy with the output. The proxy creates a standardized representation of that output and sends the response back to the client. The client proxy unmarshals the response into native objects for subsequent processing by the client code.

Standardizing the format of the information passing between the client and the application allows a client written in one programming language to communicate with an application written in another. The proxy

classes, which are automatically generated from a web service description by a variety of toolkits, handle the translation between native programming objects and the standardized representation. See the topic “Proxies” on page 5 for more information.

Web service protocol stack

A web service implementation depends on technologies often organized in a layered stack. The implementation itself defines a standard protocol for each technology layer, with each layer depending on the layers appearing below it in the stack.

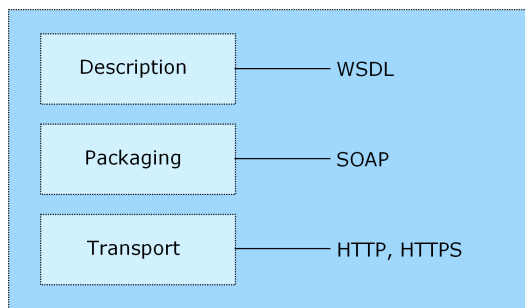


Figure 2. Web service protocol stack

Beginning at the bottom of the stack, the Transport layer defines the technology standards for communication, allowing information to move across the network. HTTP or HTTPS are often used as the standard for the transport layer.

The Packaging layer rests on top of Transport and defines the standard for structuring information for transport across the network. The SOAP format is commonly used, which offers an XML structure for packaging the data. See the topic “Simple Object Access Protocol” for more information.

The topmost layer is Description and identifies the standards used by the layers below it in the stack, as well as providing the definition of the interface available for client use. The most common means of conveying this information is through the use of a WSDL file. See the topic “Web Service Description Language” on page 3 for more information.

Simple Object Access Protocol

The Simple Object Access Protocol (SOAP) is a way to pass information between applications in an XML format.

SOAP messages are transmitted from the sending application to the receiving application, typically over an HTTP session. The actual SOAP message is made up of the Envelope element, which contains a Body element and an optional Header element.

- **Envelope.** This mandatory element is the root of the SOAP message, identifying the transmitted XML as being a SOAP packet. An envelope contains a body section and an optional header section.
- **Header.** This optional element provides an extension mechanism indicating processing information for the message. For example, if the operation using the message requires security credentials, those credentials should be part of the envelope header.
- **Body.** This element contains the message payload, the raw data being transmitted between the sending and receiving applications. The body itself may consist of multiple child elements, with an XML schema typically defining the structure of this data.

A SOAP packet and the corresponding XML is structured in the following way:

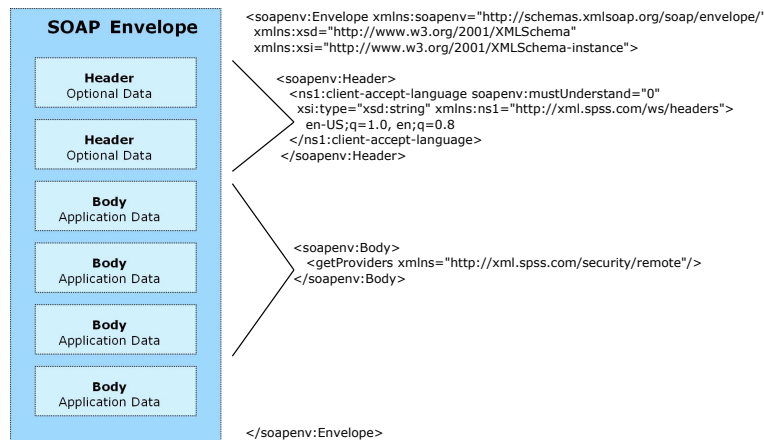


Figure 3. An example SOAP packet

Web Service Description Language

A Web Service Description Language (WSDL) file provides an XML-based map of what functionality the published web service allows, separating the implementation in the service from the interface. The WSDL defines the following:

- The access location of the web service
- Operations the web service exposes
- Parameters the exposed operations accept
- Any request or response messages associated with the operations

The WSDL provides the information necessary to generate a client-side proxy in the target programming language.

In accordance with the WSDL specification adopted by the World Wide Web Consortium, information in the WSDL is organized into the following sections:

- **Types.** Content definitions for web service operation input and output. See the topic “Types” for more information.
- **Messages.** Input and output definitions for the web service operations. See the topic “Messages” on page 4 for more information.
- **PortTypes.** Groups of operations offered by the web service. See the topic “Port types” on page 4 for more information.
- **Bindings.** Protocols and formats for the web service operations. See the topic “Bindings” on page 4 for more information.
- **Services.** Endpoints at which the web service functionality can be accessed. See the topic “Services” on page 5 for more information.

Types

The types element of a WSDL file contains the data type definitions employed by messages processed by the web service. These definitions use XML to organize the information relevant to the type element being defined. Consider the following example type definitions:

```
<wsdl:types>
  <schema targetNamespace="http://xml.spss.com/security/remote"
    xmlns="http://www.w3.org/2001/XMLSchema">
    <element name="getProviders">
      <complexType />
    </element>
    <element name="getProvidersResponse">
      <complexType>

```

```

        <sequence>
          <element name="providerInfo[unbounded]" type="tns1:providerInfo" />
        </sequence>
      </complexType>
    </element>
  </schema>
</wsdl:types>

```

This section defines two elements, *getProviders* and *getProvidersResponse*. The former is an empty element. The latter contains a sequence of *providerInfo* child elements. These children are all of the *providerInfo* type, which is defined elsewhere.

In practice, the WSDL file typically references type element definitions found in an external XML schema. For instance, the following definition uses *security-remote.xsd* to define type elements.

```

<wsdl:types>
  <xs:schema>
    <xs:import namespace="http://xml.spss.com/security/remote"
      schemaLocation="security-remote.xsd"/>
  </xs:schema>
</wsdl:types>

```

Messages

The message elements of a WSDL file defines the input or output parameters for operations available in the web service. Each message can consist of one or more parts, with the parts similar to the parameters of a function call in a traditional programming language. Consider the following two example message definitions:

```

<wsdl:message name="getProvidersResponse">
  <wsdl:part element="tns2:getProvidersResponse" name="parameters" />
</wsdl:message>
<wsdl:message name="getProvidersRequest">
  <wsdl:part element="tns2:getProviders" name="parameters" />
</wsdl:message>

```

The *getProvidersResponse* message contains a single part, corresponding to the *getProvidersResponse* element defined in the types section of the WSDL file. Similarly, the *getProvidersRequest* message also contains a single part, as defined by the *getProviders* element in the types section. See the topic “Types” on page 3 for more information.

Port types

The portType element of a WSDL file defines the actual interface to the web service. A port type is simply a group of related operations and is comparable to a function library, module, or class in a traditional programming language. The definition specifies the parameters for the operations, as well as any values returned. The parameters and return values correspond to messages defined elsewhere in the WSDL file. Consider the following example port type definition:

```

<wsdl:portType name="ProviderInformation">
  <wsdl:operation name="getProviders">
    <wsdl:input message="impl:getProvidersRequest" name="getProvidersRequest" />
    <wsdl:output message="impl:getProvidersResponse" name="getProvidersResponse" />
  </wsdl:operation>
</wsdl:portType>

```

The *ProviderInformation* port type consists of a single operation, *getProviders*. Input to this operation corresponds to the *getProvidersRequest* message. The operation returns information in the structure defined by the *getProvidersResponse* message. See the topic “Messages” for more information.

Bindings

The binding element of a WSDL file binds the interface defined by the port type to transport and messaging protocols. Consider the following example binding definition:

```

<wsdl:binding name="ProviderInformationSoapBinding" type="impl:ProviderInformation">
  <wsdl:soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http" />
  <wsdl:operation name="getProviders">
    <wsdl:soap:operation soapAction="" />
    <wsdl:input name="getProvidersRequest">
      <wsdl:soap:body namespace="http://xml.spss.com/security/remote" use="literal" />
    </wsdl:input>
    <wsdl:output name="getProvidersResponse">

```



```
<wsdl:soap:body namespace="http://xml.spss.com/security" use="literal" />
</wsdl:output>
</wsdl:operation>
</wsdl:binding>
```

In this case, the transport attribute of the `wsdl:soap:binding` element defines HTTP as the transport protocol. The `getProviders` operation in the interface is bound to the SOAP messaging protocol.

Services

The service element of a WSDL file identifies the network location at which the service interface can be accessed. Consider the following example service definition:

```
<wsdl:service name="ProviderInformationService">
  <wsdl:port binding="impl:ProviderInformationSoapBinding" name="ProviderInformation">
    <wsdl:soap:address location="http://pes_server:8080/security-ws/services/ProviderInformation" />
  </wsdl:port>
</wsdl:service>
```

In this example, the operations comprising the *ProviderInformation* port type can be accessed at:

`http://pes_server:8080/security-ws/services/ProviderInformation`

Proxies

Proxies serve as bridges between the client and the web service. A client-side proxy marshals the input objects into a standardized representation which is sent to the web service. A server-side proxy unmarshals the information into input objects for the service operations. The results of the operation are marshalled into standard representations and returned to the client. The client proxy unmarshals the response information into objects for any additional processing by the client.

Creating a proxy is the first step when developing a web service client; the proxy is the translation-unit between your application and the web service the application is using. Fortunately, many development environments include tools for automatically generating the client proxy from the web service WSDL file, allowing the client developer to focus on the client application code instead of transport and packaging protocols.

The proxy classes generated from a WSDL file depend on the tool used. For Java, the `wsdl2java` tool, which is part of the Apache Axis project, can be used. This tool produces a Java class for each type in the WSDL. Each port type results in a Java interface. A binding creates a stub class, and a WSDL service yields a service interface with a locator implementation. These generated classes and interfaces can be called directly from a client application written in Java to access the web service functionality.

An alternative Java proxy tool is `wsimport`, which is part of JAX-WS. The general structure of the generated classes is similar to that created by the Axis tool, but there are some differences. For example, instead of using arrays for input fields and returned items, the code generated from the `wsimport` tool uses `List` collections. In addition, if an input type matches an output type for a method, the `wsimport` tool uses a `Holder` class for the parameter.

In contrast, on the .NET platform, the `wsdl.exe` tool is often used to generate a web service proxy. This tool creates a single source file in a specified language containing the proxy class. This class includes both synchronous and asynchronous methods for each operation defined in the WSDL. For example, the web service operation `getProviders` results in the methods `getProviders`, `getProvidersBegin`, and `getProvidersEnd`. The latter two can be used for asynchronous processing.

A variety of other tools exist for other programming languages. For details, consult the documentation for those tools. In each case, the tool creates native programming constructs that permit leveraging a web service regardless of the service implementation language.

Chapter 2. Content Repository Service overview

The IBM® SPSS® Collaboration and Deployment Services Repository provides the storage facilities for IBM SPSS Collaboration and Deployment Services. The repository stores objects in a hierarchical system similar to the folder/file structure used in operating systems. The objects themselves may exist in several different versions to accommodate and track changes to the object over time.

The Content Repository Service provides remote access to the repository for general storage and retrieval of content and metadata. For example, a new object can be stored in the repository with particular name and keyword values. To retrieve the object, a query can be defined to search for objects having the specified name and keywords. Objects returned by the query can be retrieved for subsequent use. Retrieval of the object also returns the metadata associated with it.

Accessing the Content Repository Service

To access the functionality offered by the Content Repository Service, create a client application using the proxy classes generated by your preferred web service tool. The endpoint for the service is:

```
http://<host-name>:<port-number>/<context-root>/cr-ws/services/ContentRepository
```

The value of *<host-name>* corresponds to the name or IP address of the machine on which IBM SPSS Collaboration and Deployment Services Repository is installed.

Note: An IPv6 address must be enclosed in square brackets, such as [3ffe:2a00:100:7031::1]. The value of *<port-number>* indicates the port number on which the repository server is running. The *<context-root>* value specifies the custom context root, if any, configured for your repository server. If your system does not use a context root, omit this portion of the endpoint. To access the WSDL file for the service, append *?wsdl* to the service endpoint.

For example, if IBM SPSS Collaboration and Deployment Services Repository is running on port 80 of the machine *cads_server* without a context root, the WSDL file can be accessed using the path:

```
http://cads_server:80/cr-ws/services/ContentRepository?wsdl
```

Calling Content Repository Service operations

Clients access the operations offered by the web service using a stub for the service. The following is an example of how to acquire a stub in Java through Axis defined methods:

```
String context = "/cr-ws/services/ContentRepository";
URL url = new URL("http", "cads_server", 80, context);
ContentRepositoryService service = new ContentRepositoryServiceLocator();
stub = service.getContentRepository(url);
```

The service operations can be called directly from the stub, such as:

```
stub.findAllLabels();
```

Some operations may report errors for client applications using JAX-WS for proxy generation. These errors result from an incompatibility between the server implementation and the proxy code generated by the tool. For example, operations that accept an array of *TargetIdentificationSpecifier* objects as inputs, such as *lockResources* and *updateResourcesSpecific*, return errors due to the proxy code omitting the correct instance type of *IdentificationSpecifier*. Fortunately, there are often alternative operations offering similar functionality that can be used when such errors occur.

Chapter 3. Repository concepts

Resources

A resource is an item stored within the repository, such as a folder, a file, or a topic. Any resource in the repository has a collection of metadata associated with it, including:

- **ID.** A unique identifier for the resource often used by web service operations to reference the repository resource being manipulated.
- **Version.** List of version identifiers for the resource. The specification of a version and an ID uniquely identifies a resource.
- **Creator.** The principal who created the resource.
- **Creation date.** The date and time the resource was created in the repository.
- **Modification Date.** The last date and time the resource was modified.
- **Title.** The resource name.
- **Description.** Text describing the resource. For non-English text, the language should be specified for proper processing.
- **Path.** The path to the resource in the repository hierarchy. The repository stores resources in hierarchies that depend on the resource type. As a result, the path must define which hierarchy type to use for the resource. Valid hierarchy types include folder, topic, configuration, server, credential, datasource, enterprise, and submitted.

In addition to this base meta-data, individual resource types may include their own custom meta-data. For example, files include content size.

Some resources are **controlled**, meaning they contain a meaningful access control list (ACL). The ACL defines the permissions for principals that can access the resource. For example, the resource may only allow read access to everyone but the principal who created it. That principal would have total control over the resource.

A resource can be **locked** by a user to prevent others from modifying the properties or content of any version of the resource. Other users can view a locked resource, but modifications are not allowed until the lock is removed. Locks do not expire, and can be removed only by the user who locked the resource or an administrator who has the appropriate action associated with their role.

The Content Repository Service includes operations for creating, retrieving, updating, copying, moving, and deleting resources within the repository.

Folders

Folder resources provide an organization mechanism for file resources based on storage location similar to the folder structure of Windows and the directory structure of Unix. The title of the resource in the folder hierarchy corresponds to the name of the folder. The resource path defines the location of the resource in the folder hierarchy. The contents of a folder are referred to as the **children** of the folder and may be either files or other folders.

Construction of a folder hierarchy using the Content Repository Service involves use of the createResource operation to define folders. Create a child for a folder by specifying the resource path when creating or updating the resource for the child.

Files

A file resource corresponds to a simple file stored within the IBM SPSS Collaboration and Deployment Services Repository, such as a IBM SPSS Modeler stream or a IBM SPSS Statistics syntax file. In addition to the actual file content and the meta-data associated with general resources, a file resource includes the following information:

- **Author.** The author of the file.
- **MIME type.** Information indicating the media type contained within the file.
- **Size.** File size in bytes.
- **Language.** Language of the file content.
- **Topic list.** A list of topics associated with the file.
- **Keyword list.** A list of searchable keywords associated with the file.
- **Expiration date.** The date and time to remove the file from the repository.

Use the `getFile` operation to retrieve a file from the repository. If the file metadata only is needed, use the `getResource` operation.

Topics

Topics allow the definition of a classification system for the content stored in the IBM SPSS Collaboration and Deployment Services Repository, providing a hierarchical map to guide users to the resources they need. Topics function like a directory structure but differ from directories in that a single object can be listed under multiple topics.

For example, you might want to create a topic structure that mirrors your organization, with separate topics for marketing, finance, development, and so on. Users can then choose from the available topics when storing content. In addition, users can limit content searches to specific topics to accelerate the retrieval process. Because a given item can be listed under multiple topics, cross-indexing is also possible.

Alternatively, consider the following topic hierarchy, in which the model type is the basis for classifying resources:

```
Model
  association
    Apriori
    CARMA
    GRI
    Sequence
  clustering
    K-means
    Kohonen
    TwoStep
  decision tree
    C5
    CHAID
    C&RT
    QUEST
  neural network
  screening
    Anomaly detection
    Feature selection
  statistical
    factor PCA
    linear regression
    logistic regression
  text extraction
```

Any model in the repository could be assigned a topic in this hierarchy to assist in finding desired resources. For example, a user might want to find all association models that use a specific field. Alternatively, the search may be restricted to CARMA models only.

Topic resources provide an organization mechanism for file resources based on a keyword hierarchy. The title of the resource in the topic hierarchy denotes the name of the topic. The resource path defines the location of the resource in the topic hierarchy. Topics appearing under other topics in the topic hierarchy

are referred to as subtopics, or **children** of the parent topic. For example, in the model type topic hierarchy, the *Anomaly Detection* and *Feature Selection* topics are children of the *screening* topic, which is itself a child of the *Model* topic.

Construction of a topic hierarchy using the Content Repository Service involves repeated use of the `createResource` operation to define topics and their parent-child relationships. Assign topics from the resulting hierarchy to files using the `updateResource` operation to modify the list of associated topics for the file.

Specifiers

To preserve polymorphism of both parameters and return values across the web service for clients implemented in varying programming languages, the service uses wrappers, or **specifiers**, for passing resources and resource identifiers.

Resource specifier. Wraps any resource, such as a file or topic. A resource specifier is a common parameter and return value for operations dealing with resources. For convenience, a client should include a method that creates a resource specifier from a resource, similar to the following Java example:

```
public static ResourceSpecifier getResourceSpecifier(Resource resource) {
    ResourceSpecifier rs = new ResourceSpecifier();
    rs.setResource(resource);
    return rs;
}
```

Identification specifier. Wraps both the identifier and version information for a resource, providing a way for the client to uniquely identify an object. This specifier also preserves polymorphism over operations involving the identifier information, which can be either a resource identifier (`ResourceID`) or a resource path (`ResourcePath`). For convenience, a client should include a method that creates an identification specifier from an identifier and a version specification, similar to the following Java example:

```
public static IdentificationSpecifier getIdentificationSpecifier(
    Identifier id, Version version) {
    IdentificationSpecifier is = new IdentificationSpecifier();
    is.setIdentifier(id);
    is.setVersion(version);
    return is;
}
```

Label security

Label security provides control over which principals can view or modify user-defined version labels in the system, allowing the specification of which users can move or delete a label. Although users may be able to view a version of a resource in the IBM SPSS Collaboration and Deployment Services Repository, only those users with permissions for the labels associated with the version can access the labels. Moreover, label security applies to any version of any resource using the label. For example, to control who can assign production versions of resources, an administrator may restrict access to the *Production* label to prevent other users from moving that label from one version to a newer version. The security defined for the *Production* label applies to every version of every resource using that label.

A label is secured by associating it with an access control list (ACL). The ACL defines the permission level for principals in the system. Principals fall into one of two categories:

- A **user** is an individual who needs access to the label.
- A **group** is a set of users who need access to the label.

Each principal in the system is characterized by the following attributes:

- **ID.** A unique identifier of the principal. The ID may be useful for debugging purposes, but should generally not be shown to users.
- **Type.** An indicator of whether the principal is a user or group.

- **Display name.** A name for the principal suitable for display by a client application. This name may include the provider name and domain for some system configurations.

Valid permissions for principals include:

- **Modify.** Principals with this permission can apply, move, and delete the label, as well as delete the version of a resource having the label. If a user does not have this permission for a label, that user cannot delete a resource or version of a resource to which the label is applied.
- **Read.** Any principal with this permission can view the version of a resource associated with the label by referencing the label.

The Content Repository Service includes operations for retrieving and updating the security for existing labels.

Custom properties

The standard metadata for resources can be extended to include information from user-defined custom properties. For example, a *Reviewer* property could be assigned to files to denote the person responsible for reviewing the file before moving it into production. The default metadata for the resource does not include this property so a custom property must be defined. Working with custom properties involves the following two distinct approaches:

- Defining the properties
- Assigning values to the properties for specific objects

Defining custom properties

Custom property definition involves the specification of three criteria: the property type, the property label, and the property reach. The custom property type determines the type of information that can be stored within the property. Available property types include:

- **string.** Values for the custom property correspond to string data.
- **number.** The custom property values are numbers.
- **boolean.** Values for the custom property represent binary choices, such as *yes/no* or *true/false*.
- **single choice.** A value for this property type represents a single selection from a list of possible alternatives.
- **multiple select.** Values for the custom property correspond to a one or more selections from a list of possible alternatives.

The custom property type can be used by client interfaces to present appropriate controls for manipulating the property value. For example, if the server indicates that a property is a boolean, the client can use an option (radio) button to allow the user to modify the value. The property label provides text that can be used to describe the control.

The reach of a custom property specifies which types of repository objects include the property. Custom properties can be applied to all objects within the repository or restricted to certain types of objects, such as files, folders, or jobs.

The system includes operations for creating, retrieving, updating, and deleting custom properties.

Assigning custom property values

A newly created custom property is immediately available to all repository objects of the type defined by the property. For example, the custom property "Reviewer" may be defined for all jobs and files in the repository, but not for folders. Every job and file can be assigned a value for this property. Initially the property value will be a null or default value for each object, so assigning a value corresponds to updating the existing value. Updating a custom property value for an object requires the specification of both the new value for the property and an identifier for the object being assigned the value.

The system includes operations for retrieving and updating custom property values for objects within the repository.

Transfers

Transfers involve the exchange of resources between two repository instances or between a repository and a file system. Typically this involves the export of a folder from one repository and the subsequent import of that folder into another. For any successful transfer, the following two criteria must be defined:

- The source to transfer
- The target destination for the source being transferred

Both the source and target are specified using the path information for the resources. For example, if the source being transferred is the *Modeling* folder from repository A and the target path corresponds to the *Analysis* folder of repository B, the transfer creates a *Modeling* folder as a child of the *Analysis* folder in repository B.

The transfer definition also includes the specification of a policy for handling conflicts that occur if the target destination already contains a child having the same title as the resource being transferred. Possible conflict resolutions include the following:

- Not creating any new versions if a resource already exists in the target location
- Deleting existing target versions and replacing them with imported versions from the source
- Adding new versions to the target resource corresponding to the versions from the source

When adding new versions, a policy for handling label conflicts can also be defined. For example, suppose a version of the file *QuarterlyResults.sps* in the transfer source has the label *Production* and the transfer target contains a file with the same name in the same location. If conflicts are handled by appending new versions to the target and a version of the target file already has the label *Production*, a version label conflict occurs. A policy for resolving conflicts of this type determines whether the source or target version retains the conflicting label during a transfer.

The system includes operations for initiating, monitoring, and canceling resource transfers.

Promotion

Promotion provides a policy-based approach to transferring individual objects between IBM SPSS Collaboration and Deployment Services Repository instances. A promotion request requires the specification of the following two items:

- an object to promote
- a promotion policy governing the promotion process

A promotion policy identifies the rules used for a particular promotion. The policy determines which related repository objects, if any, are promoted along with the specified object. For example, when promoting a job, you often want to include any files referenced by the job steps. In addition, you may want to include execution server and credential definitions. The policy dictates how these items are handled.

Promotion is typically used in conjunction with label event notifications. For example, an analyst can set up the *Production* label to notify an administrator when the label is applied to a job so that the job can subsequently be promoted to production status.

To submit a promotion request, the role for the user must include the *Promote Objects* action. In addition, the creation of new items in the target server may require that the role associated with the target credentials include certain actions. See the topic “Promotion considerations” on page 14 for more information.

Use the `promoteResource` operation to promote objects.

Promotion Policies

A promotion policy is a resource definition that specifies rules and properties to apply when promoting objects. Use of a promotion policy prevents having to redefine the set of rules each time an object is promoted. Instead, you apply the policy to the promotion request, and the policy rules are automatically enforced. A promotion policy is defined once, but can be applied to any number of promotion requests. Information specified in a promotion policy includes the following:

- promotion timing
- resource definition inclusion
- related resource exclusion

Promotion timing determines when the promoted object becomes available in a new IBM SPSS Collaboration and Deployment Services Repository. In immediate promotion, the promoted object is added to the new repository server automatically as part of the promotion request. In this case, the promotion policy must specify the target repository server as well as valid credentials for accessing that server to enable the source and target repository servers to communicate with each other. In contrast, delayed promotion saves the promoted object to a specified file on the file system for subsequent transfer at a later time. In this case, the promotion policy includes no information about the target repository server. The promotion is completed by manually importing the resulting file into the target server.

The resource definition portion of a promotion policy specifies how to handle the resource definitions referenced by a promoted object. For example, a job may include steps that refer to server and credential definitions. Some steps may rely on data source definitions. If these definitions do not exist in the target server, the promoted item will not function properly without manual intervention to redefine these properties. By including the necessary resource definitions in the promotion, the promoted item should function in the target server exactly as it does in the source server without any redefinition. However, if you are sure the necessary resource definitions exist in the target server, the definitions from the source server can be omitted from the promotion.

If an object being promoted uses other IBM SPSS Collaboration and Deployment Services Repository items, the promotion policy should include information about which of those items should be excluded from the promotion. For example, when promoting IBM Analytical Decision Management objects, it may be necessary to include a version of an associated rule file for a IBM SPSS Modeler stream but exclude other aspects. The promotion policy specifies the items to exclude by their MIME types.

To create or modify a promotion policy, the role for the user must include the *Define Promotion Policies* action. In addition, the user must have write permissions to the *Promotion Policies* subfolder of the *Resource Definitions* folder.

Use the `createResource` operation to create promotion policies.

Promotion considerations

For an object, resource definitions, and referenced files to all be promoted successfully, the role for the target server credentials must include all relevant actions for the items included in the promotion request.

The following table identifies the actions needed for a variety of items that may be included in the promotion set.

Table 1. Actions affecting promotion.

Included in promotion set	Action needed for target credentials
Resource having notifications	<i>Define and Manage Notifications</i>
Credentials	<i>Define Credentials</i>

Table 1. Actions affecting promotion (continued).

Included in promotion set	Action needed for target credentials
Resource having custom properties	<i>Define Custom Properties</i>
Data source	<i>Define Datasources</i>
Message domain	<i>Define Message Domains</i>
Server cluster definition	<i>Define Server Clusters</i>
Server definition	<i>Define Servers</i>
Resource having topics	<i>Define Topics</i>
Job	<i>Job Edit</i>
Resource having subscriptions for a different principal	<i>Create Subscriptions</i>
Resource having subscriptions for the target principal	<i>Manage Subscriptions</i>
Job having a schedule	<i>Schedules</i>
Resource version that is not the latest version in the target server	<i>Show All Versions</i>
Latest resource version	<i>Show LATEST</i>

In addition, the target credentials must have the *Manage label* permission for any label associated with a promoted object version.

Chapter 4. Operation reference

The applyTransferPolicy operation

Applies specified policies to resolve conflicts arising during a resource transfer.

Input fields

The following table lists the input fields for the applyTransferPolicy operation.

Table 2. Fields for applyTransferPolicy.

Field	Type/Valid Values	Description
TransferIdentifier	TransferIdentifier	Unique identifier of the resource transfer.
CompositeTransferPolicy	CompositeTransferPolicy	Defines a set of the resource transfer policies.

The cancelTransfer operation

Cancels a resource transfer.

Input fields

The following table lists the input fields for the cancelTransfer operation.

Table 3. Fields for cancelTransfer.

Field	Type/Valid Values	Description
TransferIdentifier	TransferIdentifier	Unique identifier of the resource transfer.

SOAP request example

Client invocation of the cancelTransfer operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <cancelTransfer xmlns="http://xml.spss.com/repository/remote">
      <TransferIdentifier xmlns="http://xml.spss.com/repository">5d9485bag0</TransferIdentifier>
    </cancelTransfer>
  </soapenv:Body>
</soapenv:Envelope>
```

SOAP response example

The server responds to a `cancelTransfer` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <cancelTransferResponse xmlns="http://xml.spss.com/repository/remote"/>
  </soapenv:Body>
</soapenv:Envelope>
```

The cascadePermissions operation

Allows a client to set permissions on a resource and cascade the permission to all children. Permissions in the file system are not intrinsically inherited from parent resources. This does not mean that a child file of a folder will not have the same permissions as the parent folder, and indeed this will occur by default. However, the children of a resource can be updated with custom permissions. As a result, it may be necessary when changing permissions on a folder to either cascade the entire new access control list or the new permission down to lower levels.

Input fields

The following table lists the input fields for the `cascadePermissions` operation.

Table 4. Fields for `cascadePermissions`.

Field	Type/Valid Values	Description
ParentIdentificationSpecifier	IdentificationSpecifier	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.
Options	Options	Options to cascade permission deltas as well as set permission on the parent.
AccessControlList	AccessControlList	Defines entire scope of permission on a controlled resource for all principals that have access.

Java example

The following example cascades the change in permissions, beginning with the retrieved folder. The `Options` parameter in the operation allows the client to cascade only the delta as well as set the new permission in the access control list on the parent. These are the default settings, so the options are not explicitly changed. This method will set the new access control list for the folder and cascade only the permission added. In this case, the principal MJM gets WRITE permission.

```
ResourcePath rp = new ResourcePath();
rp.setValue("/") + getFolderName());
ResourceSpecifier rs = stub.getResource(getIDSpecifier(rp, null));
Folder f = (Folder)rs.getResource();
AccessControlList acl = f.getAccessControlList();
AccessControlEntry ace = new AccessControlEntry();
ace.setPrincipal("MJM");
ace.setPermission(com.spss.security.access.ObjectPermission.WRITE.getID());
acl.addAccessControlEntry(ace);
stub.cascadePermissions(
  getIDSpecifier(f.getResourceID(), null), new Options(), acl);
```

SOAP response example

The server responds to a `cascadePermissions` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <cascadePermissionsResponse xmlns="http://xml.spss.com/repository/remote"/>
  </soapenv:Body>
</soapenv:Envelope>
```

The copyResource operation

Copies a resource to a specified parent. The identifier for the parent folder must be specified. The resource version can be specified in the resource object. If there is an attempt to copy the resource to a topic or a file parent, an exception is thrown. The operation returns the object identifier of the newly created object.

Input fields

The following table lists the input fields for the `copyResource` operation.

Table 5. Fields for copyResource.

Field	Type/Valid Values	Description
TargetParent	TargetParent	Specifies a parent target for a move or copy operation.
Source	Source	Specifies the source for a move or copy operation.

Return information

The following table identifies the information returned by the `copyResource` operation.

Table 6. Return Value.

Type	Description
IdentificationSpecifier	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

Java example

The following sample copies an array of resources to a designated folder. The `setIdentifier` method sets the identifier for the `TargetParent` object to the identifier for the target folder. The function then parses the resource array, creating a new `Source` object for each resource in the array.

```
public void copyResources(AdaptableResource[] resources, AdaptableFolder targetFolder)
  throws IOException, ServiceException {
  ContentRepository repository = getContentRepository();
  TargetParent tgtParent = new TargetParent();
  tgtParent.setIdentifier(targetFolder.getResourceID());
  for (int i = 0; i < resources.length; i++) {
    AdaptableResource resource = resources[i];
    Source source = new Source();
    source.setIdentifier(resource.getResourceID());
    IdentificationSpecifier objSpecification =
      repository.copyResource(tgtParent, source);
    targetFolder.setHasChildren(true);
  }
}
```

The `setIdIdentifier` method sets the Source identifier to the identifier for the resource being copied. The `copyResource` operation then copies the Source object to the target, returning the identifier for the copied object. The function sets the `HasChildren` property for the target folder to `true` to reflect the presence of the newly copied resources.

SOAP request example

Client invocation of the `copyResource` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">Native/validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <copyResource xmlns="http://xml.spss.com/repository/remote">
      <TargetParent xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4aac00072ffb00000106561fccf88047" xsi:type="ResourceID"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
      </TargetParent>
      <Source xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4aac00072ffb00000106561fccf88177" xsi:type="ResourceID"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
      </Source>
    </copyResource>
  </soapenv:Body>
</soapenv:Envelope>
```

SOAP response example

The server responds to a `copyResource` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <copyResourceResponse xmlns="http://xml.spss.com/repository/remote">
      <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4aac00072ffb00000106a7c0f12d8116" xsi:type="ResourceID"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
        <Version marker="0:2005-09-30 14:50:59.086"/>
      </IdentificationSpecifier>
    </copyResourceResponse>
  </soapenv:Body>
</soapenv:Envelope>
```

The createCustomProperty operation

Creates a custom property that can be assigned values for resources.

Input fields

The following table lists the input fields for the `createCustomProperty` operation.

Table 7. Fields for createCustomProperty.

Field	Type/Valid Values	Description
CustomProperty	CustomProperty	Metadata describing a custom property defined by a customer to apply to resources.

Return information

The following table identifies the information returned by the `createCustomProperty` operation.

Table 8. Return Value.

Type	Description
string	The identifier of the created custom property.

Java example

The following sample creates a custom property having the label *Reviewed*. The `AppliesTo` object defines the reach of the property while the `Constraint` object defines its type.

```
CustomProperty cp = new CustomProperty();
cp.setLabel("Reviewed");

AppliesTo at = new AppliesTo();
at.setFolderApplicable(false);
at.setJobApplicable(true);
cp.setAppliesTo(at);

Constraint cnst = new Constraint();
Freeform ff = new Freeform();
ff.setType(CustomPropertyValueTypes.BOOLEAN);
cnst.setFreeform(ff);
cp.setConstraint(cnst);

ContentRepository repository = getContentRepository();
String id = repository.createCustomProperty(cp);
```

The `AppliesTo` object includes three methods for defining the property reach, `setFolderApplicable`, `setJobApplicable`, and `setFileApplicable`. The first two accept boolean arguments indicating whether or not the property applies to folders and jobs. The `setFileApplicable` method limits a custom property to specific file types defined by a `FileApplicable` object corresponding to the MIME types of the files. In the absence of such a specification, the custom property being defined applies to all files.

To define the `Constraint` object, create a `Freeform` object and set its type to the type for the property using `setType`. Use `setFreeform` to assign the type to the `Constraint` object.

After assigning the reach and type to the property using `setAppliesTo` and `setConstraint`, add the custom property to the system using the `createCustomProperty` operation for the stub.

SOAP request example

Client invocation of the `createCustomProperty` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">Native/validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <createCustomProperty xmlns="http://xml.spss.com/repository/remote">
      <CustomProperty label="Reviewed" xmlns="http://xml.spss.com/repository">
        <appliesTo>
          <fileApplicable/>
        </appliesTo>
      </CustomProperty>
    </createCustomProperty>
  </soapenv:Body>
</soapenv:Envelope>
```

```

        <jobApplicable>true</jobApplicable>
        <folderApplicable>false</folderApplicable>
    </appliesTo>
    <constraint>
        <freeform type="boolean"/>
    </constraint>
</CustomProperty>
</createCustomProperty>
</soapenv:Body>
</soapenv:Envelope>

```

SOAP response example

The server responds to a createCustomProperty operation call by sending a SOAP response message containing the results. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <createCustomPropertyResponse xmlns="http://xml.spss.com/repository/remote">
      <identifier>0a0a4aac00072ffb00000106f3f7b05b348f</identifier>
    </createCustomPropertyResponse>
  </soapenv:Body>
</soapenv:Envelope>

```

The createOrAddResource operation

Creates a resource in the repository. If the resource already exists, this operation adds a new version of it. The resource may be a folder, topic, or file.

Input fields

The following table lists the input fields for the createOrAddResource operation.

Table 9. Fields for createOrAddResource.

Field	Type/Valid Values	Description
ParentIdentificationSpecifier	IdentificationSpecifier	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.
ResourceSpecifier	ResourceSpecifier	Wrapper for a resource object. Used to define service interface parameter to preserve polymorphism.
PropagateVersionSpecifier	VersionSpecifier	This Type is used to specify a particular version of an object, either by Marker or Label. It is distinguished from a Version Type by the fact that Version is used to return information about an Object's version, and may contain multiple labels.

Return information

The following table identifies the information returned by the createOrAddResource operation.

Table 10. Return Value.

Type	Description
IdentificationSpecifier	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

The createResource operation

Creates a resource in the repository. The resource may be a folder, topic, file, new version of an existing file, or a promotion policy.

Input fields

The following table lists the input fields for the createResource operation.

Table 11. Fields for createResource.

Field	Type/Valid Values	Description
ParentIdentificationSpecifier	IdentificationSpecifier	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.
ResourceSpecifier	ResourceSpecifier	Wrapper for a resource object. Used to define service interface parameter to preserve polymorphism.

Return information

The following table identifies the information returned by the createResource operation.

Table 12. Return Value.

Type	Description
IdentificationSpecifier	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

Java example

Creating a resource typically involves the following steps:

1. Create a ResourcePath object and set its value to the repository path for the object being created.
2. Create a resource object corresponding to the item being created: Folder for folders, Topic for topics, and File for files.
3. Define the properties for the resource object, such as its title.
4. Add the resource object to the repository using createResource.

The following code creates a folder in the repository.

```
ResourcePath rp = new ResourcePath();
rp.setValue("/");
Folder folder = new Folder();
Title title = new Title();
title.setValue("myfolder");
folder.setTitle(title);
stub.createResource(getIDSpecifier(rp, null), getResourceSpecifier( folder));
```

The following code creates a new topic in the repository. Topics are similar to folders, but should not be considered parents of a file. Topics from multiple hierarchies can be associated with a file.

```
ResourcePath rp = new ResourcePath();
rp.setValue("/");
Topic topic = new Topic();
Title title = new Title();
title.setValue(getTopicName());
topic.setTitle(title);
stub.createResource(getIDSpecifier(rp, null), getResourceSpecifier(topic));
```

The following code adds a file to the repository. The content of the file can be transmitted as part of the SOAP message or as an attachment. The former should only be used for small files. The example here uses an attachment.

```
ResourcePath rp = new ResourcePath();
rp.setValue("/") + getFolderName() + "/";
File f = new File();
Title t = new Title();
t.setValue("myNewFile.xls");
f.setTitle(t);
MimeType mt = new MimeType ();
mt.setValue("application/msexcel");
f.setMimeType(mt);
Description english = new Description();
english.setValue("This is my file");
f.addDescription(english);
Author a = new Author();
a.setValue("PES User");
f.setAuthor(a);
URL("file:///c:/myFile.xls");
URLDataSource uds = new URLDataSource(url);
DataHandler dh = new DataHandler(uds);
AttachmentPart at = new AttachmentPart(dh);
BinaryContent bc = new BinaryContent();
Attachment att = new Attachment();
att.setHref(at.getContentId());
bc.setAttachment(att);
f.setBinaryContent(bc);
((org.apache.axis.client.Stub)stub).addAttachment(at);
stub.createResource(getIDSpecifier(rp, null), getResourceSpecifier(f));
```

The following code adds a new version of a file that already exists in the repository. Notice that we use the `getResource` operation to retrieve only the metadata for the existing file, avoiding sending the file content to the client.

```
ResourcePath rp = new ResourcePath();
rp.setValue("/") + getFolderName() + "/myNewFile.xls" );
File f = (File)stub.getResource(rp, null);
Version v = new Version();
v.addLabel("PRODUCTION");
v.addLabel("GOLDEN CODE");
v.setMarker("Version 2");
f.setVersion(v);
Keyword key = new Keyword();
key.setValue("April");
f.addKeyword(key);
URL url = new URL("file:///c:/newFile.xls");
URLDataSource uds = new URLDataSource(url);
DataHandler dh = new DataHandler(uds);
AttachmentPart at = new AttachmentPart(dh);
BinaryContent bc = new BinaryContent();
Attachment att = new Attachment();
att.setHref(at.getContentId());
bc.setAttachment(att);
f.setBinaryContent(bc);
storedFileID = stub.createResource(getIDSpecifier(rp,null),getResourceSpecifier( f));
```

To create a promotion policy, perform the following steps:

1. Create an `IdentificationSpecifier` object for the *Promotion Policies* folder in the repository. Set the identifier value for this specifier object to the value for the policies folder.

```
IdentificationSpecifier parentIdSpec = new IdentificationSpecifier();
parentIdSpec.setIdentifier(new ResourceID());
parentIdSpec.getIdentifier().setValue("000000000000000000000000000000000e7");
```

2. Create a `ResourceSpecifier` object for the promotion policy.
3. Create a `File` object. Define title, author, and MIME type metadata values for the promotion policy. Be sure the MIME type is specified as *application/x-vnd.spss-promotion-policy*.
4. Assign the file object to the resource specifier using the `setResource` method.

```
ResourceSpecifier resSpec = new ResourceSpecifier();
File file = new File();
resSpec.setResource(file);
file.setTitle(new Title());
file.getTitle().setValue("My Promotion Policy");
file.setAuthor(new Author());
file.getAuthor().setValue("admin");
file.setMimeType(new MimeType());
file.getMimeType().setValue("application/x-vnd.spss-promotion-policy");
```

5. Create a `PromotionSpecification` object for the promotion policy specification.
6. Create two `TransferSpecifier` objects, one for the source being promoted and one for the target of the promotion.
7. For the target specifier, supply the `setEndpoint` method with the identifier for the server definition corresponding to the target repository server.
8. For the target specifier, supply the `setCredentials` method with the identifier for the credentials definition corresponding to valid credentials for connecting to the target repository server.
9. Create a `ResourcePath` object for the location within the target server in which to promote the item. Use the `setValue` method to specify the root folder within the target. Assign the path object to the target specifier by using the `setResourcePath` method.

```
final PromotionSpecification proSpecification = new PromotionSpecification();
TransferSpecifier sourceTransferSpec = new TransferSpecifier();
TransferSpecifier targetTransferSpec = new TransferSpecifier();
targetTransferSpec.setEndpoint("spsscr:///?id=09412e7d9120c69a0000012d62846bd3803b");
targetTransferSpec.setCredentials("spsscr:///?id=09412e7d9120c69a0000012d62846bd3804a");
ResourcePath targetResPath = new ResourcePath();
targetResPath.setValue("/");
targetTransferSpec.setResourcePath(targetResPath);
```

10. Define the rules governing the import of items for the target server. Use an `AppendImportPolicy` object for the rules applied for adding versions to existing target objects.
11. Supply the `setInvalidVersions` method with a Boolean indicating whether or not invalid versions from the source should be promoted. Supply the `setHonorResourceLocks` method with a Boolean indicating whether or not to honor the locks on any locked objects. Supply the `setVersionLabelPolicy` method with a value indicating whether labels from the source server or the target server should be used.
12. Assign the policy object to the target specifier by using the `addTransferPolicy` method.

```
AppendImportPolicy appendImportPolicy = new AppendImportPolicy();
appendImportPolicy.setInvalidVersions(true);
appendImportPolicy.setHonorResourceLocks(false);
appendImportPolicy.setVersionLabelPolicy(VersionLabelPolicy.SOURCE);
targetTransferSpec.addTransferPolicy(appendImportPolicy);
```

13. Define the rules governing the exclusion of resource definitions for the promotion. Create an `ExcludeTransferPolicy` object for the rules.
14. Create a `ResourcePath` object for each hierarchy to exclude. Supply the `setHierarchyType` method with a value indicating the hierarchy type. Use the `addResourceIdentifier` method to add the path object to the policy.
15. Assign the policy object to the target specifier by using the `addTransferPolicy` method.

```
ExcludeTransferPolicy excludeTransferPolicy = new ExcludeTransferPolicy();
ResourcePath excludedHierarchy = new ResourcePath();
excludedHierarchy.setHierarchyType(HierarchyType.TOPIC);
excludeTransferPolicy.addResourceIdentifier(excludedHierarchy);
excludedHierarchy = new ResourcePath();
excludedHierarchy.setHierarchyType(HierarchyType.CUSTOMPROPERTY);
excludeTransferPolicy.addResourceIdentifier(excludedHierarchy);
targetTransferSpec.addTransferPolicy(excludeTransferPolicy);
```

16. Define the rules governing the exclusion of items used by the promoted item. Create an `ExcludeDependentTransferPolicy` object for the rules.
17. Create an `ExcludeTransferSpecification` object to specify the excluded items.
18. Create a `SelectedMetadata` object to specify the metadata corresponding to the excluded items.
19. Create a `MimeType` object to specify the MIME type for the excluded type. Supply the `setValue` method with the MIME type. Use the `addMetadataBase` method to add the MIME type object to the metadata object.
20. Assign the metadata object to the transfer specification for the exclusion by using the `setSelectedMetadata` method.
21. Assign the transfer specification to the policy by using the `setExcludeTransferSpecification` method.
22. Assign the policy object to the target specifier by using the `addTransferPolicy` method.
23. Use the `setTransferTarget` and `setTransferSource` method to assign the transfer specifications to the promotion specification.

```
ExcludeDependentTransferPolicy excludeDependentTransferPolicy = new ExcludeDependentTransferPolicy();
ExcludeTransferSpecification excludeTransferSpecification = new ExcludeTransferSpecification();
SelectedMetadata selectedMetadata = new SelectedMetadata();
MimeType mimeType = new MimeType();
mimeType.setValue("application/x-vnd.pasw-dms-rule");
selectedMetadata.addMetadataBase(mimeType);
excludeTransferSpecification.setSelectedMetadata(selectedMetadata);
excludeDependentTransferPolicy.setExcludeTransferSpecification(excludeTransferSpecification);
targetTransferSpec.addTransferPolicy(excludeDependentTransferPolicy);

proSpecification.setTransferTarget(targetTransferSpec);
proSpecification.setTransferSource(sourceTransferSpec);
```

24. Convert the promotion specification to a `ByteArrayInputStream` object and add the result to the web service call. The following code uses the `DataHandler` class to make the conversion.

```
DataHandler dataHandler = new DataHandler(new DataSource() {

    public String getContentType() {
        return "application/x-vnd.spss-promotion-policy";
    }

    public InputStream getInputStream() throws IOException {
        byte[] bytes = null;
        StringWriter stringWriter = new StringWriter();
        try {
            proSpecification.marshal(stringWriter);
            bytes = stringWriter.toString().getBytes("UTF8");
        } catch (Exception e) {
            e.printStackTrace();
        }
        return new ByteArrayInputStream(bytes);
    }

    public String getName() {
        return null;
    }

    public OutputStream getOutputStream() throws IOException {
        return null;
    }

});

AttachmentPart attachmentPart = new AttachmentPart();
attachmentPart.setDataHandler(dataHandler);
((Stub) contentRepository).addAttachment(attachmentPart);

Attachment attachment = new Attachment();
attachment.setHref(attachmentPart.getContentId());
file.setBinaryContent(new BinaryContent());
file.getBinaryContent().addAttachment(attachment);
```

25. Supply the `createResource` operation with the specifier for the *Promotion Policies* folder and the resource specifier for the promotion policy.

```
IdentificationSpecifier identificationSpecifier = contentRepository.createResource(parentIdSpec, resSpec);
```

SOAP request example

Client invocation of the createResource operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">Native/validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <createResource xmlns="http://xml.spss.com/repository/remote">
      <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4aac00072ffb000001069387e017857c" xsi:type="ResourceID"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
      </IdentificationSpecifier>
      <ResourceSpecifier xmlns="http://xml.spss.com/repository">
        <Resource xsi:type="File" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
          <Title value="property.svg"/>
          <Author value="sbennett"/>
          <MimeType value="image/svg+xml"/>
          <BinaryContent>
            <Attachment href="B0245F71E6C368E83D2B99EE9645C5DF"/>
          </BinaryContent>
        </Resource>
      </ResourceSpecifier>
    </createResource>
  </soapenv:Body>
</soapenv:Envelope>
```

SOAP response example

The server responds to a createResource operation call by sending a SOAP response message containing the results. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <createResourceResponse xmlns="http://xml.spss.com/repository/remote">
      <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4aac00072ffb00000106f3f7b05b3a03" xsi:type="ResourceID"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
        <Version marker="0:2005-11-16 16:54:38.844"/>
      </IdentificationSpecifier>
    </createResourceResponse>
  </soapenv:Body>
</soapenv:Envelope>
```

The createResourcePropagate operation

Creates a resource in the repository, propagating the metadata from a specified resource version to the new resource. The resource may be a folder, topic, file, or new version of an existing file.

Input fields

The following table lists the input fields for the createResourcePropagate operation.

Table 13. Fields for createResourcePropagate.

Field	Type/Valid Values	Description
ParentIdentificationSpecifier	IdentificationSpecifier	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.
ResourceSpecifier	ResourceSpecifier	Wrapper for a resource object. Used to define service interface parameter to preserve polymorphism.
PropagateVersionSpecifier	VersionSpecifier	This Type is used to specify a particular version of an object, either by Marker or Label. It is distinguished from a Version Type by the fact that Version is used to return information about an Object's version, and may contain multiple labels.

Return information

The following table identifies the information returned by the createResourcePropagate operation.

Table 14. Return Value.

Type	Description
IdentificationSpecifier	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

Java example

Propagating properties to a newly created resource typically involves the following steps:

1. Create an IdentificationSpecifier object and set its value to the identifier for the parent object of the resource being created.
2. Create a ResourceSpecifier object to wrap the resource object being created.
3. Create a resource object corresponding to the item being created: Folder for folders, Topic for topics, and File for files.
4. Define the properties for the resource object, such as its title.
5. Add the resource object to the ResourceSpecifier object.
6. Create a VersionSpecifier object to identify the version from which the metadata should be propagated. Use either the label or marker for the version.
7. Add the resource object to the repository using the createResourcePropagate operation.

The following code creates a new version of a file, propagating the metadata from the *TEST* version.

```
IdentificationSpecifier parentID = new IdentificationSpecifier();
ResourceID id = new ResourceID();
id.setValue("0a0a4a351eb101db0000010f584899f284c4");
parentID.setIdentifier(id);
```



```

ResourceSpecifier specRes = new ResourceSpecifier();
File f = new File();
Title t = new Title();
t.setValue("property.svg");
f.setTitle(t);
MimeType mt = new MimeType ();
mt.setValue("image/svg+xml");
f.setMimeType(mt);
Author a = new Author();
a.setValue("sbennett");
f.setAuthor(a);
URL("file:///c:/property.svg");
URLDataSource uds = new URLDataSource(url);
DataHandler dh = new DataHandler(uds);
AttachmentPart at = new AttachmentPart(dh);
BinaryContent bc = new BinaryContent();
Attachment att = new Attachment();
att.setHref(at.getContentId());
bc.setAttachment(att);
f.setBinaryContent(bc);
((org.apache.axis.client.Stub)stub).addAttachment(at);
specRes.setResource(f);
VersionSpecifier prop = new VersionSpecifier();
prop.setLabel("TEST");
IdentificationSpecifier idSpec = stub.createResourcePropagate(parentID, specRes, prop);

```

SOAP request example

Client invocation of the createResourcePropagate operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">Native/validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <createResourcePropagate xmlns="http://xml.spss.com/repository/remote">
      <ParentIdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4a351eb101db0000010f584899f284c4" xsi:type="ResourceID"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
      </ParentIdentificationSpecifier>
      <ResourceSpecifier xmlns="http://xml.spss.com/repository">
        <Resource xsi:type="File" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
          <Title value="property.svg"/>
          <Author value="sbennett"/>
          <MimeType value="image/svg+xml"/>
          <BinaryContent>
            <Attachment href="B0245F71E6C368E83D2B99EE9645C5DF"/>
          </BinaryContent>
        </Resource>
      </ResourceSpecifier>
      <PropagateVersionSpecifier label="TEST" xmlns="http://xml.spss.com/repository"/>
    </createResourcePropagate>
  </soapenv:Body>
</soapenv:Envelope>

```

SOAP response example

The server responds to a createResourcePropagate operation call by sending a SOAP response message containing the results. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <createResourcePropagateResponse xmlns="http://xml.spss.com/repository/remote">
      <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4aac00072ffb00000106f3f7b05b3a03" xsi:type="ResourceID"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
        <Version marker="0:2005-11-16 16:54:38.844"/>
      </IdentificationSpecifier>
    </createResourcePropagateResponse>
  </soapenv:Body>
</soapenv:Envelope>

```

```

    </IdentificationSpecifier>
  </createResourcePropagateResponse>
</soapenv:Body>
</soapenv:Envelope>

```

The createResourcePropagateSpecific operation

This operation is deprecated and will be removed in a future release. Consumers of the web service should use the createResourcePropagate operation.

Input fields

The following table lists the input fields for the createResourcePropagateSpecific operation.

Table 15. Fields for createResourcePropagateSpecific.

Field	Type/Valid Values	Description
ParentIdentificationSpecifier	IdentificationSpecifier	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.
SpecificResourceSpecifier	SpecificResourceSpecifier	Wrapper for a resource object. Used to define service interface parameter to preserve polymorphism.
PropagateVersionSpecifier	VersionSpecifier	This Type is used to specify a particular version of an object, either by Marker or Label. It is distinguished from a Version Type by the fact that Version is used to return information about an Object's version, and may contain multiple labels.

Return information

The following table identifies the information returned by the createResourcePropagateSpecific operation.

Table 16. Return Value.

Type	Description
IdentificationSpecifier	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

The createResourceSpecific operation

This operation is deprecated and will be removed in a future release. Consumers of the web service needing to create resources should use the createResource operation.

Input fields

The following table lists the input fields for the createResourceSpecific operation.

Table 17. Fields for createResourceSpecific.

Field	Type/Valid Values	Description
ParentIdentificationSpecifier	IdentificationSpecifier	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.
SpecificResourceSpecifier	SpecificResourceSpecifier	Wrapper for a resource object. Used to define service interface parameter to preserve polymorphism.

Return information

The following table identifies the information returned by the createResourceSpecific operation.

Table 18. Return Value.

Type	Description
IdentificationSpecifier	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

The createUniqueSubmittedFolder operation

For internal use only. Consumers of the web service should not use this operation.

Input fields

The following table lists the input fields for the createUniqueSubmittedFolder operation.

Table 19. Fields for createUniqueSubmittedFolder.

Field	Type/Valid Values	Description
workName	string	The name which is passed from client side.

Return information

The following table identifies the information returned by the createUniqueSubmittedFolder operation.

Table 20. Return Value.

Type	Description
IdentificationSpecifier	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

The deleteCustomProperty operation

Deletes a custom property from the repository.

Input fields

The following table lists the input fields for the deleteCustomProperty operation.

Table 21. Fields for deleteCustomProperty.

Field	Type/Valid Values	Description
identifier	string	Identifier for the custom property.

Java example

The following function accepts a string corresponding to the identifier for the custom property to be deleted. The deleteCustomProperty operation uses this information to delete the property from the repository.

```
public void deleteCustomProperty(String customPropertyID)
    throws IOException, ServiceException, RepositoryException {
    ContentRepository repository = getContentRepository();
    repository.deleteCustomProperty(customPropertyID);
}
```

SOAP request example

Client invocation of the deleteCustomProperty operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">Native/validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <deleteCustomProperty xmlns="http://xml.spss.com/repository/remote">
      <identifier>0a0a4aac00072ffb0000106f3f7b05b348f</identifier>
    </deleteCustomProperty>
  </soapenv:Body>
</soapenv:Envelope>
```

SOAP response example

The server responds to a deleteCustomProperty operation call by sending a SOAP response message containing the results. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <deleteCustomPropertyResponse xmlns="http://xml.spss.com/repository/remote"/>
  </soapenv:Body>
</soapenv:Envelope>
```

The deleteResource operation

Deletes a specified resource from the repository. To delete a specific version of the resource, include that information in the identification specifier. If there is not a version instance, the latest version is deleted.

Input fields

The following table lists the input fields for the deleteResource operation.

Table 22. Fields for deleteResource.

Field	Type/Valid Values	Description
IdentificationSpecifier	IdentificationSpecifier	Wrapper for identification information (Id, path, version label, version marker). Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

Java example

The following function uses getResourceID to access the identifier for a supplied resource. The setIdentifier method assigns this value to an IdentificationSpecifier. The deleteResource operation deletes the corresponding repository resource.

```
public void deleteResource(AdaptableResource resource)
    throws ResourceNotFoundException, RepositoryDatabaseException,
        ResourceAuthorizationException, RepositoryException,
        RemoteException, IOException, ServiceException {
    IdentificationSpecifier id = new IdentificationSpecifier();
    id.setIdentifier(resource.getResourceID());
    id.setVersion(null);
    getContentRepository().deleteResource(id);
}
```

SOAP request example

Client invocation of the deleteResource operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">Native/validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <deleteResource xmlns="http://xml.spss.com/repository/remote">
      <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4aac00072ffb000001069387e01785c5"
          xsi:type="ResourceID"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
      </IdentificationSpecifier>
    </deleteResource>
  </soapenv:Body>
</soapenv:Envelope>
```

SOAP response example

The server responds to a deleteResource operation call by sending a SOAP response message containing the results. An example of such a message follows.

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

```

<soapenv:Body>
  <deleteResourceResponse xmlns="http://xml.spss.com/repository/remote"/>
</soapenv:Body>
</soapenv:Envelope>

```

The disposeTransfer operation

Frees system resources allocated on the server for a resource transfer.

Input fields

The following table lists the input fields for the disposeTransfer operation.

Table 23. Fields for disposeTransfer.

Field	Type/Valid Values	Description
TransferIdentifier	TransferIdentifier	Unique identifier of the resource transfer.

SOAP request example

Client invocation of the disposeTransfer operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <disposeTransfer xmlns="http://xml.spss.com/repository/remote">
      <TransferIdentifier xmlns="http://xml.spss.com/repository">5d947f5e7f</TransferIdentifier>
    </disposeTransfer>
  </soapenv:Body>
</soapenv:Envelope>

```

SOAP response example

The server responds to a disposeTransfer operation call by sending a SOAP response message containing the results. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <disposeTransferResponse xmlns="http://xml.spss.com/repository/remote"/>
  </soapenv:Body>
</soapenv:Envelope>

```

The findAllLabels operation

Queries the repository for all labels currently assigned to objects in the hierarchical content repository. This includes labels in use for files and jobs.

Return information

The following table identifies the information returned by the `findAllLabels` operation.

Table 24. Return Value.

Type	Description
<code>string[]</code>	Labels in use in the repository.

Java example

The following function returns all labels as an array of strings.

```
public String[] findAllLabels()
    throws RepositoryDatabaseException, RepositoryException,
           RemoteException, IOException, ServiceException {
    return getContentRepository().findAllLabels();
}
```

SOAP request example

Client invocation of the `findAllLabels` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">Native/validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <findAllLabels xmlns="http://xml.spss.com/repository/remote"/>
  </soapenv:Body>
</soapenv:Envelope>
```

SOAP response example

The server responds to a `findAllLabels` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <findAllLabelsResponse xmlns="http://xml.spss.com/repository/remote">
      <label>Modeler Output</label>
      <label>Production</label>
    </findAllLabelsResponse>
  </soapenv:Body>
</soapenv:Envelope>
```

The `getActions` operation

Retrieves the list of actions, if any, that are defined for a resource.

Input fields

The following table lists the input fields for the `getActions` operation.

Table 25. Fields for `getActions`.

Field	Type/Valid Values	Description
IdentificationSpecifier	IdentificationSpecifier	Wrapper for identification information (Id, path, version label, version marker). Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

Return information

The following table identifies the information returned by the `getActions` operation.

Table 26. Return Value.

Type	Description
ActionList	List of action specifications.

Java example

The following function returns an array of action specifications for a resource.

```
public ActionSpecificationType[] getList(IdentificationSpecifier identificationSpecifier, String action)
    throws IOException, ServiceException {
    ContentRepository repository = getContentRepository();
    ActionList actionList = repository.getActions(identificationSpecifier);
    ActionSpecificationType[] actionSpecificationType =
        actionList.getActionSpecification();
    return actionSpecificationType;
}
```

SOAP request example

Client invocation of the `getActions` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <getActions xmlns="http://xml.spss.com/repository/remote">
      <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4aac00072ffb000001094fa9f57e8028" xsi:type="ResourceID"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
      </IdentificationSpecifier>
    </getActions>
  </soapenv:Body>
</soapenv:Envelope>
```

The `getAllCustomProperties` operation

Retrieves all custom properties currently defined in the repository.

Return information

The following table identifies the information returned by the `getAllCustomProperties` operation.

Table 27. Return Value.

Type	Description
<code>CustomProperty[]</code>	Metadata describing a custom property defined by a customer to apply to resources.

Java example

The following function simply uses the stub for the service to return an array containing the complete set of available custom properties. Accessor methods for the returned `CustomProperty` objects can be used to return the properties for any specific property, such as its label.

```
public CustomProperty[] getCustomProperties() throws IOException, ServiceException {
    ContentRepository repository = getContentRepository();
    CustomProperty[] customProperties = repository.getAllCustomProperties();
    return customProperties;
}
```

SOAP request example

Client invocation of the `getAllCustomProperties` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">Native/validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <getAllCustomProperties xmlns="http://xml.spss.com/repository/remote"/>
  </soapenv:Body>
</soapenv:Envelope>
```

SOAP response example

The server responds to a `getAllCustomProperties` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <getAllCustomPropertiesResponse xmlns="http://xml.spss.com/repository/remote">
      <CustomProperty label="Reviewed?" identifier="0a0a4aac00072ffb000001094fa9f57ed7e8"
        xmlns="http://xml.spss.com/repository">
        <appliesTo>
          <fileApplicable/>
          <jobApplicable>false</jobApplicable>
          <folderApplicable>false</folderApplicable>
        </appliesTo>
        <constraint>
          <freeform type="boolean"/>
        </constraint>
      </CustomProperty>
      <CustomProperty label="Reviewer" identifier="0a0a4aac00072ffb000001094fa9f57ed7e9"
        xmlns="http://xml.spss.com/repository">
        <appliesTo>
          <fileApplicable/>
          <jobApplicable>false</jobApplicable>
          <folderApplicable>false</folderApplicable>
        </appliesTo>
      </CustomProperty>
    </getAllCustomPropertiesResponse>
  </soapenv:Body>
</soapenv:Envelope>
```

```

    </appliesTo>
    <constraint>
      <select multipleSelect="false">
        <selectionValue>Andy</selectionValue>
        <selectionValue>Nate</selectionValue>
        <selectionValue>Cory</selectionValue>
        <selectionValue>Rick</selectionValue>
      </select>
    </constraint>
  </CustomProperty>
</getAllCustomPropertiesResponse>
</soapenv:Body>
</soapenv:Envelope>

```

The getAllLabelSecurity operation

Retrieves the security information for all labels in the system.

Return information

The following table identifies the information returned by the getAllLabelSecurity operation.

Table 28. Return Value.

Type	Description
SecureLabel[]	Wrapper for a secure label, contains the label and its Access Control List (ACL).

Java example

The following sample returns an array of SecureLabel objects corresponding to the labels in the system. Each label object contains an AccessControlList object defining which principals have which permissions.

```

SecureLabel[] labelSec = stub.getAllLabelSecurity();
for (int i = 0; i < labelSec.length; i++) {
    System.out.println("Label = " + labelSec[i].getLabel());
    System.out.println("Can read = " + labelSec[i].getCanRead());
    System.out.println("Can modify = " + labelSec[i].getCanModify());
    AccessControlList acl = labelSec[i].getAcl();
    AccessControlEntry[] ace = acl.getAccessControlEntry();
    for (int j = 0; j < ace.length; j++) {
        System.out.println("Permission = " + ace[j].getPermission().toString());
        System.out.println("Principal = " + ace[j].getPrincipal().getDisplayName());
    }
}

```

SOAP request example

Client invocation of the getAllLabelSecurity operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <getAllLabelSecurity xmlns="http://xml.spss.com/repository/remote"/>
  </soapenv:Body>
</soapenv:Envelope>

```

SOAP response example

The server responds to a `getAllLabelSecurity` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <getAllLabelSecurityResponse xmlns="http://xml.spss.com/repository/remote">
      <SecureLabel label="Draft" canRead="true" canModify="true"
        xmlns="http://xml.spss.com/repository">
        <acl>
          <AccessControlEntry Permission="MODIFY">
            <Principal ID="//gNative//$$security/everyoneGroup"
              DisplayName="-- everyone --" Name="$$security/everyoneGroup"
              IsGroup="true"/>
          </AccessControlEntry>
          <AccessControlEntry Permission="READ">
            <Principal ID="//gNative//$$security/everyoneGroup"
              DisplayName="-- everyone --" Name="$$security/everyoneGroup"
              IsGroup="true"/>
          </AccessControlEntry>
          <owner ID="" Name=""/>
        </acl>
      </SecureLabel>
      <SecureLabel label="Production" canRead="true" canModify="true"
        xmlns="http://xml.spss.com/repository">
        <acl>
          <AccessControlEntry Permission="MODIFY">
            <Principal ID="//uAD/spss/kkruger" DisplayName="kkruger (spss)"
              Name="kkruger" IsGroup="false"/>
          </AccessControlEntry>
          <AccessControlEntry Permission="READ">
            <Principal ID="//uAD/spss/kkruger" DisplayName="kkruger (spss)"
              Name="kkruger" IsGroup="false"/>
          </AccessControlEntry>
          <owner ID="" Name=""/>
        </acl>
      </SecureLabel>
    </getAllLabelSecurityResponse>
  </soapenv:Body>
</soapenv:Envelope>
```

The getAllLocks operation

Returns all currently locked resources. For maximum flexibility, the structure of the information returned follows the `webrowset.xsd` schema.

Return information

The following table identifies the information returned by the `getAllLocks` operation.

Table 29. Return Value.

Type	Description
RowSetContent	Allows the user to transport a row set either as an out-of-band attachment or as in-band string

SOAP request example

Client invocation of the `getAllLocks` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
  </soapenv:Header>
```

```

    </wsse:UsernameToken>
  </wsse:Security>
  <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
    xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
</soapenv:Header>
<soapenv:Body>
  <getAllLocks xmlns="http://xml.spss.com/repository/remote"/>
</soapenv:Body>
</soapenv:Envelope>

```

SOAP response example

The server responds to a getAllLocks operation call by sending a SOAP response message containing the results. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <getAllLocksResponse xmlns="http://xml.spss.com/repository/remote">
      <RowSetContent pageNumber="1" xmlns="http://xml.spss.com/repository">
        <content>&lt;?xml version="1.0" &gt; &lt;webRowSet
          xmlns="http://java.sun.com/xml/ns/jdbc" &gt;
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" &gt;
          xsi:schemaLocation="http://java.sun.com/xml/ns/jdbc
            http://java.sun.com/xml/ns/jdbc/webrowset.xsd" &gt; &lt;properties&gt;
            &lt;command&gt;&lt;null&gt;&lt;/command&gt;
            &lt;currency&gt;100&lt;/currency&gt;
            &lt;datasource&gt;&lt;null&gt;&lt;/datasource&gt;
            &lt;escape-processing&gt;true&lt;/escape-processing&gt;
            &lt;fetch-direction&gt;1000&lt;/fetch-direction&gt;
            &lt;fetch-size&gt;0&lt;/fetch-size&gt;
            &lt;isolation-level&gt;2&lt;/isolation-level&gt;
            &lt;key-columns&gt; &lt;/key-columns&gt; &lt;map&gt;
            &lt;/map&gt; &lt;max-field-size&gt;0&lt;/max-field-size&gt;
            &lt;max-rows&gt;0&lt;/max-rows&gt;
            &lt;query-timeout&gt;0&lt;/query-timeout&gt;
            &lt;read-only&gt;true&lt;/read-only&gt;
            &lt;rowset-type&gt;ResultSet.TYPE_SCROLL_INSENSITIVE&lt;/rowset-type&gt;
            &lt;show-deleted&gt;false&lt;/show-deleted&gt;
            &lt;table-name&gt;&lt;null&gt;&lt;/table-name&gt;
            &lt;url&gt;&lt;null&gt;&lt;/url&gt; &lt;sync-provider&gt;
            &lt;sync-provider-name&gt;com.sun.rowset.providers.RIOptimisticProvider&lt;/sync-provider-name&gt;
            &lt;sync-provider-vendor&gt;Sun Microsystems
            Inc.&lt;/sync-provider-vendor&gt;
            &lt;sync-provider-version&gt;1.0&lt;/sync-provider-version&gt;
            &lt;sync-provider-grade&gt;2&lt;/sync-provider-grade&gt;
            &lt;data-source-lock&gt;1&lt;/data-source-lock&gt;
            &lt;/sync-provider&gt; &lt;/properties&gt; &lt;metadata&gt;
            &lt;column-count&gt;6&lt;/column-count&gt;
            &lt;column-definition&gt;
            &lt;column-index&gt;1&lt;/column-index&gt;
            &lt;auto-increment&gt;false&lt;/auto-increment&gt;
            &lt;case-sensitive&gt;false&lt;/case-sensitive&gt;
            &lt;currency&gt;false&lt;/currency&gt;
            &lt;nullable&gt;1&lt;/nullable&gt;
            &lt;signed&gt;false&lt;/signed&gt;
            &lt;searchable&gt;true&lt;/searchable&gt;
            &lt;column-display-size&gt;36&lt;/column-display-size&gt;
            &lt;column-label&gt;objid&lt;/column-label&gt;
            &lt;column-name&gt;objid&lt;/column-name&gt;
            &lt;schema-name&gt;&lt;/schema-name&gt;
            &lt;column-precision&gt;18&lt;/column-precision&gt;
            &lt;column-scale&gt;0&lt;/column-scale&gt;
            &lt;table-name&gt;SPSSCMOR_RELATIONSHIP&lt;/table-name&gt;
            &lt;catalog-name&gt;&lt;/catalog-name&gt;
            &lt;column-type&gt;-2&lt;/column-type&gt;
            &lt;column-type-name&gt;binary&lt;/column-type-name&gt;
            &lt;/column-definition&gt; &lt;column-definition&gt;
            &lt;column-index&gt;2&lt;/column-index&gt;
            &lt;auto-increment&gt;false&lt;/auto-increment&gt;
            &lt;case-sensitive&gt;false&lt;/case-sensitive&gt;
            &lt;currency&gt;false&lt;/currency&gt;
            &lt;nullable&gt;1&lt;/nullable&gt;
            &lt;signed&gt;false&lt;/signed&gt;
            &lt;searchable&gt;true&lt;/searchable&gt;
            &lt;column-display-size&gt;1024&lt;/column-display-size&gt;
            &lt;column-label&gt;path&lt;/column-label&gt;
            &lt;column-name&gt;path&lt;/column-name&gt;
            &lt;schema-name&gt;&lt;/schema-name&gt;
            &lt;column-precision&gt;1024&lt;/column-precision&gt;
            &lt;column-scale&gt;0&lt;/column-scale&gt;

```

```

&lt;table-name&gt;&lt;/table-name&gt;
&lt;catalog-name&gt;&lt;/catalog-name&gt;
&lt;column-type&gt;12&lt;/column-type&gt;
&lt;column-type-name&gt;nvarchar&lt;/column-type-name&gt;
&lt;/column-definition&gt; &lt;column-definition&gt;
&lt;column-index&gt;3&lt;/column-index&gt;
&lt;auto-increment&gt;false&lt;/auto-increment&gt;
&lt;case-sensitive&gt;false&lt;/case-sensitive&gt;
&lt;currency&gt;false&lt;/currency&gt;
&lt;nullable&gt;1&lt;/nullable&gt;
&lt;signed&gt;false&lt;/signed&gt;
&lt;searchable&gt;true&lt;/searchable&gt;
&lt;column-display-size&gt;512&lt;/column-display-size&gt;
&lt;column-label&gt;marker&lt;/column-label&gt;
&lt;column-name&gt;marker&lt;/column-name&gt;
&lt;schema-name&gt;&lt;/schema-name&gt;
&lt;column-precision&gt;512&lt;/column-precision&gt;
&lt;column-scale&gt;0&lt;/column-scale&gt;
&lt;table-name&gt;SPSSCMOR_OBJECTVERSION&lt;/table-name&gt;
&lt;catalog-name&gt;&lt;/catalog-name&gt;
&lt;column-type&gt;12&lt;/column-type&gt;
&lt;column-type-name&gt;nvarchar&lt;/column-type-name&gt;
&lt;/column-definition&gt; &lt;column-definition&gt;
&lt;column-index&gt;4&lt;/column-index&gt;
&lt;auto-increment&gt;false&lt;/auto-increment&gt;
&lt;case-sensitive&gt;false&lt;/case-sensitive&gt;
&lt;currency&gt;false&lt;/currency&gt;
&lt;nullable&gt;1&lt;/nullable&gt;
&lt;signed&gt;false&lt;/signed&gt;
&lt;searchable&gt;true&lt;/searchable&gt;
&lt;column-display-size&gt;1024&lt;/column-display-size&gt;
&lt;column-label&gt;fileVersionLabel&lt;/column-label&gt;
&lt;column-name&gt;fileVersionLabel&lt;/column-name&gt;
&lt;schema-name&gt;&lt;/schema-name&gt;
&lt;column-precision&gt;1024&lt;/column-precision&gt;
&lt;column-scale&gt;0&lt;/column-scale&gt;
&lt;table-name&gt;&lt;/table-name&gt;
&lt;catalog-name&gt;&lt;/catalog-name&gt;
&lt;column-type&gt;12&lt;/column-type&gt;
&lt;column-type-name&gt;nvarchar&lt;/column-type-name&gt;
&lt;/column-definition&gt; &lt;column-definition&gt;
&lt;column-index&gt;5&lt;/column-index&gt;
&lt;auto-increment&gt;false&lt;/auto-increment&gt;
&lt;case-sensitive&gt;false&lt;/case-sensitive&gt;
&lt;currency&gt;false&lt;/currency&gt;
&lt;nullable&gt;1&lt;/nullable&gt;
&lt;signed&gt;false&lt;/signed&gt;
&lt;searchable&gt;true&lt;/searchable&gt;
&lt;column-display-size&gt;128&lt;/column-display-size&gt;
&lt;column-label&gt;owner&lt;/column-label&gt;
&lt;column-name&gt;owner&lt;/column-name&gt;
&lt;schema-name&gt;&lt;/schema-name&gt;
&lt;column-precision&gt;128&lt;/column-precision&gt;
&lt;column-scale&gt;0&lt;/column-scale&gt;
&lt;table-name&gt;SPSSCMOR_LOCK&lt;/table-name&gt;
&lt;catalog-name&gt;&lt;/catalog-name&gt;
&lt;column-type&gt;12&lt;/column-type&gt;
&lt;column-type-name&gt;nvarchar&lt;/column-type-name&gt;
&lt;/column-definition&gt; &lt;column-definition&gt;
&lt;column-index&gt;6&lt;/column-index&gt;
&lt;auto-increment&gt;false&lt;/auto-increment&gt;
&lt;case-sensitive&gt;false&lt;/case-sensitive&gt;
&lt;currency&gt;false&lt;/currency&gt;
&lt;nullable&gt;1&lt;/nullable&gt;
&lt;signed&gt;false&lt;/signed&gt;
&lt;searchable&gt;true&lt;/searchable&gt;
&lt;column-display-size&gt;23&lt;/column-display-size&gt;
&lt;column-label&gt;creationDate&lt;/column-label&gt;
&lt;column-name&gt;creationDate&lt;/column-name&gt;
&lt;schema-name&gt;&lt;/schema-name&gt;
&lt;column-precision&gt;23&lt;/column-precision&gt;
&lt;column-scale&gt;3&lt;/column-scale&gt;
&lt;table-name&gt;SPSSCMOR_LOCK&lt;/table-name&gt;
&lt;catalog-name&gt;&lt;/catalog-name&gt;
&lt;column-type&gt;93&lt;/column-type&gt;
&lt;column-type-name&gt;datetime&lt;/column-type-name&gt;
&lt;/column-definition&gt; &lt;/metadata&gt; &lt;data&gt;
&lt;currentRow&gt; &lt;columnValue&gt;&lt;/columnValue&gt;
&lt;columnValue&gt;/Jobs/Results&lt;/columnValue&gt;
&lt;columnValue&gt;0:2007-10-23 12:14:01.71&lt;/columnValue&gt;
&lt;columnValue&gt;LATEST, Test&lt;/columnValue&gt;
&lt;columnValue&gt;admin&lt;/columnValue&gt;
&lt;columnValue&gt;119340979727&lt;/columnValue&gt;
&lt;/currentRow&gt; &lt;/currentRow&gt;

```

```

    <columnValue></columnValue>;
    <columnValue>/ModelerStreamLibrary/Data
    Preparation/P01_AgeCalculations.str</columnValue>;
    <columnValue>0:2007-10-23 12:09:19.132</columnValue>;
    <columnValue>LATEST, Production</columnValue>;
    <columnValue>admin</columnValue>;
    <columnValue>1193410484000</columnValue>;
    </currentRow> </currentRow>;
    <columnValue></columnValue>;
    <columnValue>/ModelerStreamLibrary/Data
    Preparation/P02_BasketTransformation.str</columnValue>;
    <columnValue>0:2007-10-23 12:09:22.841</columnValue>;
    <columnValue>LATEST, Production</columnValue>;
    <columnValue>admin</columnValue>;
    <columnValue>1193410529473</columnValue>;
    </currentRow> </data> </webRowSet> </content>
  </RowSetContent>
</getAllLocksResponse>
</soapenv:Body>
</soapenv:Envelope>

```

The getAllVersions operation

Retrieves metadata information for all versions of a specified resource. Any version information in the resource is ignored.

The information returned by this operation corresponds to resource versions that are visible for the credentials used in the web service call. Visibility depends on both label security and expiration settings.

- Expired versions are visible only to the resource owner and administrators.
- If the credentials are associated with the *Show All Versions* action or correspond to the owner of the resource, all versions of the file are visible. However, all of the labels may not be visible. Users with these credentials can also see and use the *LATEST* label on the resource.
- If the credentials are not associated with the *Show All Versions* action or do not correspond to the owner of the resource, only labeled resource versions are visible. Users with these credentials can see the *LATEST* version only if they have *Show Latest* action.

Input fields

The following table lists the input fields for the getAllVersions operation.

Table 30. Fields for getAllVersions.

Field	Type/Valid Values	Description
IdentificationSpecifier	IdentificationSpecifier	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

Return information

The following table identifies the information returned by the getAllVersions operation.

Table 31. Return Value.

Type	Description
ResourceSpecifier[]	Wrapper for a resource object. Used to define service interface parameter to preserve polymorphism.

Java example

The following function returns an array of file resources corresponding to all versions of a specified file. The `getResourceID` method returns the identifier for the file, which is assigned to an `IdentificationSpecifier` object using `setIdentifier`. The `getAllVersions` operation returns an array of resource specifiers for the file versions.

```
public AdaptableFile[] getAllVersions(AdaptableFile file)
    throws IOException, ServiceException, CoreException {
    ContentRepository repository = getContentRepository();
    IdentificationSpecifier idSpec = new IdentificationSpecifier();
    idSpec.setIdentifier(file.getResourceID());
    ResourceSpecifier[] versions = repository.getAllVersions(idSpec);
    AdaptableFile[] fileVersions = new AdaptableFile[versions.length];
    Object parent = file.getParent();
    for (int i = 0; i < fileVersions.length; i++) {
        Resource resourceVersion = versions[i].getResource();
        fileVersions[i] = (AdaptableFile) getAdaptableResource(parent, resourceVersion);
    }
    return fileVersions;
}
```

To access the actual resources, use the `getResource` method for the resource specifiers.

SOAP request example

Client invocation of the `getAllVersions` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <getAllVersions xmlns="http://xml.spss.com/repository/remote">
      <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4aac00072ffb000001094fa9f57ecd59" xsi:type="ResourceID"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
      </IdentificationSpecifier>
    </getAllVersions>
  </soapenv:Body>
</soapenv:Envelope>
```

SOAP response example

The server responds to a `getAllVersions` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <getAllVersionsResponse xmlns="http://xml.spss.com/repository/remote">
      <ResourceSpecifier xmlns="http://xml.spss.com/repository">
        <Resource canWrite="true" canDelete="true" canModifyPermissions="true"
          xsi:type="File" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
          <ResourceID value="0a0a4aac00072ffb000001094fa9f57ecd59"/>
          <Version marker="0:2006-02-21 17:19:50.796"/>
          <CreationDate value="2006-02-21T17:19:50.793-06:00"/>
          <ModificationDate value="2006-02-21T17:19:50.793-06:00"/>
          <Title value="Job1"/>
          <ResourcePath value="/Job1" hierarchyType="folder"/>
          <CreatedBy value="kkreuter"/>
          <ObjectCreationDate value="2006-02-21T17:19:50.593-06:00"/>
          <ObjectLastModifiedBy value="kkreuter"/>
          <ObjectLastModifiedDate value="2006-02-21T17:19:51.000-06:00"/>
        </Resource>
      </ResourceSpecifier>
    </getAllVersionsResponse>
  </soapenv:Body>
</soapenv:Envelope>
```

```

<AccessControlList poe="CMOR">
  <AccessControlEntry Permission="READ">
    <Principal ID="//gNative//$$security/everyoneGroup"
      DisplayName="-- everyone --" Name="$$security/everyoneGroup"
      IsGroup="true"/>
  </AccessControlEntry>
  <owner ID="//uNative//kkreuter" DisplayName="kkreuter" Name="kkreuter" IsGroup="false"/>
</AccessControlList>
<Author value="kkreuter"/>
<MimeType value="application/x-vnd.spss-prms-job"/>
</Resource>
</ResourceSpecifier>
</getAllVersionsResponse>
</soapenv:Body>
</soapenv:Envelope>

```

The getAllVersionsReturnSpecific operation

Retrieves metadata information for all versions of a specified resource. Any version information in the resource is ignored.

The difference between this operation and the getAllVersions operation is the structure of the wrapper for the returned resources. The getAllVersions operation returns an array of ResourceSpecifier objects detailing the resources. Different resource types are handled through the use of XMLSchema instance types. In contrast, the getAllVersionsReturnSpecific operation returns an array of SpecificResourceSpecifier objects. Different resource types are handled through the use of different objects for the types. For example, instead of returning a Resource object of the File type, getAllVersionsReturnSpecific returns a File object. Clients that cannot properly handle instance types should use getAllVersionsReturnSpecific instead of getAllVersions.

The information returned by this operation corresponds to resource versions that are visible for the credentials used in the web service call. Visibility depends on both label security and expiration settings.

- Expired versions are visible only to the resource owner and administrators.
- If the credentials are associated with the *Show All Versions* action or correspond to the owner of the resource, all versions of the file are visible. However, all of the labels may not be visible. Users with these credentials can also see and use the *LATEST* label on the resource.
- If the credentials are not associated with the *Show All Versions* action or do not correspond to the owner of the resource, only labeled resource versions are visible. Users with these credentials can see the *LATEST* version only if they have *Show Latest* action.

Input fields

The following table lists the input fields for the getAllVersionsReturnSpecific operation.

Table 32. Fields for getAllVersionsReturnSpecific.

Field	Type/Valid Values	Description
IdentificationSpecifier	IdentificationSpecifier	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

Return information

The following table identifies the information returned by the `getAllVersionsReturnSpecific` operation.

Table 33. Return Value.

Type	Description
<code>SpecificResourceSpecifier[]</code>	Wrapper for a resource object. Used to define service interface parameter to preserve polymorphism.

Java example

The following function returns an array of specific resource specifiers corresponding to all versions of a specified file.

```
IdentificationSpecifier id = new IdentificationSpecifier();
Identifier id = new Identifier();
id.setValue("0a0a4a35c75d16910000010eec1efbfc8006");
is.setIdentifier(id);
SpecificResourceSpecifier[] rs = stub.getAllVersionsReturnSpecific(is);
for (int i = 0; i < rs.length; i++) {
    System.out.println(rs[i].getFile().getVersion().getMarker());
}
```

SOAP request example

Client invocation of the `getAllVersionsReturnSpecific` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <getAllVersionsReturnSpecific xmlns="http://xml.spss.com/repository/remote">
      <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4a35c75d16910000010eec1efbfc8006"/>
      </IdentificationSpecifier>
    </getAllVersionsReturnSpecific>
  </soapenv:Body>
</soapenv:Envelope>
```

SOAP response example

The server responds to a `getAllVersionsReturnSpecific` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <getAllVersionsReturnSpecificResponse xmlns="http://xml.spss.com/repository/remote">
      <SpecificResourceSpecifier xmlns="http://xml.spss.com/repository">
        <File canWrite="true" canDelete="true" canModifyPermissions="true">
          <ResourceID value="0a0a4a35c75d16910000010eec1efbfc8006"/>
          <Version marker="0:2006-11-15 09:01:14.203"/>
          <CreationDate value="2006-11-15T09:01:14.203-06:00"/>
          <ModificationDate value="2006-11-15T09:01:14.203-06:00"/>
          <Title value="Tree"/>
          <ResourcePath value="/Jobs/Tree" hierarchyType="folder"/>
          <CreatedBy value="admin"/>
          <ObjectCreationDate value="2006-11-15T09:01:14.127-06:00"/>
          <ObjectLastModifiedBy value="admin"/>
        </File>
      </SpecificResourceSpecifier>
    </getAllVersionsReturnSpecificResponse>
  </soapenv:Body>
</soapenv:Envelope>
```

```

<ObjectLastModifiedDate value="2006-11-17T10:00:06.537-06:00"/>
<AccessControlList poe="CMOR">
  <AccessControlEntry Permission="READ">
    <Principal ID="//gNative//$$security/everyoneGroup" DisplayName="-- everyone --"
      Name="$$security/everyoneGroup" IsGroup="true"/>
  </AccessControlEntry>
  <AccessControlEntry Permission="READ">
    <Principal ID="//uNative//admin" DisplayName="admin" Name="admin" IsGroup="false"/>
  </AccessControlEntry>
  <owner ID="//uNative//admin" DisplayName="admin" Name="admin" IsGroup="false"/>
</AccessControlList>
<Author value="admin"/>
<MimeType value="application/x-vnd.spss-prms-job"/>
</File>
</SpecificResourceSpecifier>
<SpecificResourceSpecifier xmlns="http://xml.spss.com/repository">
  <File canWrite="true" canDelete="true" canModifyPermissions="true">
    <ResourceID value="0a0a4a35c75d16910000010eeclfbfc8006"/>
    <Version marker="1:2006-11-17 10:02:19.276"/>
    <CreationDate value="2006-11-17T10:02:19.277-06:00"/>
    <ModificationDate value="2006-11-17T10:02:20.527-06:00"/>
    <Title value="Tree"/>
    <ResourcePath value="/Jobs/Tree" hierarchyType="folder"/>
    <CreatedBy value="admin"/>
    <ObjectCreationDate value="2006-11-15T09:01:14.127-06:00"/>
    <ObjectLastModifiedBy value="admin"/>
    <ObjectLastModifiedDate value="2006-11-17T10:00:06.537-06:00"/>
    <AccessControlList poe="CMOR">
      <AccessControlEntry Permission="READ">
        <Principal ID="//gNative//$$security/everyoneGroup" DisplayName="-- everyone --"
          Name="$$security/everyoneGroup" IsGroup="true"/>
      </AccessControlEntry>
      <AccessControlEntry Permission="READ">
        <Principal ID="//uNative//admin" DisplayName="admin" Name="admin" IsGroup="false"/>
      </AccessControlEntry>
      <owner ID="//uNative//admin" DisplayName="admin" Name="admin" IsGroup="false"/>
    </AccessControlList>
    <Author value="admin"/>
    <MimeType value="application/x-vnd.spss-prms-job"/>
    <ContentSize value="7272"/>
  </File>
</SpecificResourceSpecifier>
<SpecificResourceSpecifier xmlns="http://xml.spss.com/repository">
  <File canWrite="true" canDelete="true" canModifyPermissions="true">
    <ResourceID value="0a0a4a35c75d16910000010eeclfbfc8006"/>
    <Version marker="2:2006-11-17 10:04:03.406"/>
    <CreationDate value="2006-11-17T10:04:03.407-06:00"/>
    <ModificationDate value="2006-11-17T10:04:03.670-06:00"/>
    <Title value="Tree"/>
    <ResourcePath value="/Jobs/Tree" hierarchyType="folder"/>
    <CreatedBy value="admin"/>
    <ObjectCreationDate value="2006-11-15T09:01:14.127-06:00"/>
    <ObjectLastModifiedBy value="admin"/>
    <ObjectLastModifiedDate value="2006-11-17T10:00:06.537-06:00"/>
    <AccessControlList poe="CMOR">
      <AccessControlEntry Permission="READ">
        <Principal ID="//gNative//$$security/everyoneGroup" DisplayName="-- everyone --"
          Name="$$security/everyoneGroup" IsGroup="true"/>
      </AccessControlEntry>
      <AccessControlEntry Permission="READ">
        <Principal ID="//uNative//admin" DisplayName="admin" Name="admin" IsGroup="false"/>
      </AccessControlEntry>
      <owner ID="//uNative//admin" DisplayName="admin" Name="admin" IsGroup="false"/>
    </AccessControlList>
    <Author value="admin"/>
    <MimeType value="application/x-vnd.spss-prms-job"/>
    <ContentSize value="7585"/>
  </File>
</SpecificResourceSpecifier>
</getAllVersionsReturnSpecificResponse>
</soapenv:Body>
</soapenv:Envelope>

```

The getBulkResourceMetadata operation

Retrieves an array of resources for a given array of identification specifiers. The information returned may be limited to a select set of metadata.

The information returned by this operation corresponds to resource versions that are visible for the credentials used in the web service call. Visibility depends on both label security and expiration settings.

- Expired versions are visible only to the resource owner and administrators.
- If the credentials are associated with the *Show All Versions* action or correspond to the owner of the resource, all versions of the file are visible. However, all of the labels may not be visible. Users with these credentials can also see and use the *LATEST* label on the resource.
- If the credentials are not associated with the *Show All Versions* action or do not correspond to the owner of the resource, only labeled resource versions are visible. Users with these credentials can see the *LATEST* version only if they have *Show Latest* action.

Input fields

The following table lists the input fields for the `getBulkResourceMetadata` operation.

Table 34. Fields for `getBulkResourceMetadata`.

Field	Type/Valid Values	Description
IdentificationSpecifier	IdentificationSpecifier[]	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.
SelectedMetadata	SelectedMetadata	Provides a way to select specific metadata for retrieval or update

Return information

The following table identifies the information returned by the `getBulkResourceMetadata` operation.

Table 35. Return Value.

Type	Description
ResourceSpecifier[]	Wrapper for a resource object. Used to define service interface parameter to preserve polymorphism.

Java example

To retrieve resource metadata in bulk:

1. Create an array of `IdentificationSpecifier` objects for the resources. Set the identification and version information for each resource.
2. Create a `SelectedMetadata` object to identify the metadata fields to be returned.
3. Supply the `getBulkResourceMetadata` operation with the identification and metadata objects.

The following code retrieves the IDs, paths, and versions for two files.

```

IdentificationSpecifier[] is = new IdentificationSpecifier[2];
ResourceID id = new ResourceID();
id.setValue("0a0a4a35c72b39630000010f588e773d8046");
is[0].setIdentifier(id);
Version vsion = new Version();
vsion.setMarker("0:2006-12-06 10:30:13.338");
is[0].setVersion(vSION);
id.setValue("0a0a4a351eb101db0000010f584899f284c7");
is[1].setIdentifier(id);
vsion.setMarker("0:2006-12-06 09:39:29.992");
is[1].setVersion(vSION);

SelectedMetadata sm = new SelectedMetadata();
sm.setMetadataBase(new ResourceID());
ResourcePath rp = new ResourcePath();
rp.setHierarchyType(HierarchyType.FOLDER);
sm.setMetadataBase(rp);

```

```

sm.setMetadataBase(new Version());

ResourceSpecifier[] resSpec = stub.getBulkResourceMetadata(is, sm);
for (int i = 0; i < resSpec.length; i++) {
    System.out.println("ID = " + resSpec[i].getResource().getResourceID().getValue());
    System.out.println("ID = " + resSpec[i].getResource().getResourcePath().getValue());
    System.out.println("ID = " + resSpec[i].getResource().getVersion().getMarker());
}

```

SOAP request example

Client invocation of the `getBulkResourceMetadata` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <getBulkResourceMetadata xmlns="http://xml.spss.com/repository/remote">
      <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4a35c72b39630000010f588e773d8046" xsi:type="ResourceID"/>
        <Version marker="0:2006-12-06 10:30:13.338"/>
      </IdentificationSpecifier>
      <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4a351eb101db0000010f584899f284c7" xsi:type="ResourceID"/>
        <Version marker="0:2006-12-06 09:39:29.992"/>
      </IdentificationSpecifier>
      <SelectedMetadata xmlns="http://xml.spss.com/repository">
        <MetadataBase xsi:type="ResourceID" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
        <MetadataBase hierarchyType="folder" xsi:type="ResourcePath"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
        <MetadataBase xsi:type="Version" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
      </SelectedMetadata>
    </getBulkResourceMetadata>
  </soapenv:Body>
</soapenv:Envelope>

```

SOAP response example

The server responds to a `getBulkResourceMetadata` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <getBulkResourceMetadataResponse xmlns="http://xml.spss.com/repository/remote">
      <ResourceSpecifier xmlns="http://xml.spss.com/repository">
        <Resource canWrite="true" canDelete="true" canModifyPermissions="true" xsi:type="File">
          <ResourceID value="0a0a4a35c72b39630000010f588e773d8046"/>
          <Version marker="0:2006-12-06 10:30:13.338"/>
          <Title value="tree_model.sps"/>
          <ResourcePath value="/StatisticsLibrary/tree_model.sps" hierarchyType="folder"/>
          <AccessControlList poe="CMOR">
            <AccessControlEntry Permission="READ">
              <Principal ID="//gNative//$$security/everyoneGroup" DisplayName="-- everyone --"
                Name="$$security/everyoneGroup" IsGroup="true"/>
            </AccessControlEntry>
            <AccessControlEntry Permission="READ">
              <Principal ID="//uNative//admin" DisplayName="admin" Name="admin" IsGroup="false"/>
            </AccessControlEntry>
            <owner ID="//uNative//admin" DisplayName="admin" Name="admin" IsGroup="false"/>
          </AccessControlList>
        </Resource>
      </ResourceSpecifier>
      <ResourceSpecifier xmlns="http://xml.spss.com/repository">
        <Resource canWrite="true" canDelete="true" canModifyPermissions="true" xsi:type="File">
          <ResourceID value="0a0a4a351eb101db0000010f584899f284c7"/>
          <Version marker="0:2006-12-06 09:39:29.992"/>
        </Resource>
      </ResourceSpecifier>
    </getBulkResourceMetadataResponse>
  </soapenv:Body>
</soapenv:Envelope>

```

```

<Title value="pes.rptdesign"/>
<ResourcePath value="/Reports/pes.rptdesign" hierarchyType="folder"/>
<AccessControlList poe="CMOR">
  <AccessControlEntry Permission="READ">
    <Principal ID="//gNative//$$security/everyoneGroup" DisplayName="-- everyone --"
      Name="$$security/everyoneGroup" IsGroup="true"/>
  </AccessControlEntry>
  <AccessControlEntry Permission="READ">
    <Principal ID="//uNative//admin" DisplayName="admin" Name="admin" IsGroup="false"/>
  </AccessControlEntry>
  <owner ID="//uNative//admin" DisplayName="admin" Name="admin" IsGroup="false"/>
</AccessControlList>
</Resource>
</ResourceSpecifier>
</getBulkResourceMetadataResponse>
</soapenv:Body>
</soapenv:Envelope>

```

The getBulkResourceMetadataReturnSpecific operation

Retrieves an array of resources for a given array of identification specifiers. The information returned may be limited to a select set of metadata.

The difference between this operation and the getBulkResourceMetadata operation is the structure of the wrapper for the returned resources. The getBulkResourceMetadata operation returns an array of ResourceSpecifier objects detailing the resources. Different resource types are handled through the use of XMLSchema instance types. In contrast, the getBulkResourceMetadataReturnSpecific operation returns an array of SpecificResourceSpecifier objects. Different resource types are handled through the use of different objects for the types. For example, instead of returning a Resource object of the File type, getBulkResourceMetadataReturnSpecific returns a File object. Clients that cannot properly handle instance types should use getBulkResourceMetadataReturnSpecific instead of getBulkResourceMetadata.

The information returned by this operation corresponds to resource versions that are visible for the credentials used in the web service call. Visibility depends on both label security and expiration settings.

- Expired versions are visible only to the resource owner and administrators.
- If the credentials are associated with the *Show All Versions* action or correspond to the owner of the resource, all versions of the file are visible. However, all of the labels may not be visible. Users with these credentials can also see and use the *LATEST* label on the resource.
- If the credentials are not associated with the *Show All Versions* action or do not correspond to the owner of the resource, only labeled resource versions are visible. Users with these credentials can see the *LATEST* version only if they have *Show Latest* action.

Input fields

The following table lists the input fields for the getBulkResourceMetadataReturnSpecific operation.

Table 36. Fields for getBulkResourceMetadataReturnSpecific.

Field	Type/Valid Values	Description
IdentificationSpecifier	IdentificationSpecifier[]	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.
SelectedMetadata	SelectedMetadata	Provides a way to select specific metadata for retrieval or update

Return information

The following table identifies the information returned by the `getBulkResourceMetadataReturnSpecific` operation.

Table 37. Return Value.

Type	Description
<code>SpecificResourceSpecifier[]</code>	Wrapper for a resource object. Used to define service interface parameter to preserve polymorphism.

Java example

To retrieve resource metadata in bulk:

1. Create an array of `IdentificationSpecifier` objects for the resources. Set the identification and version information for each resource.
2. Create a `SelectedMetadata` object to identify the metadata fields to be returned.
3. Supply the `getBulkResourceMetadataReturnSpecific` operation with the identification and metadata objects.

The following code retrieves the IDs, paths, and versions for two files.

```
IdentificationSpecifier[] is = new IdentificationSpecifier[2];
ResourceID id = new ResourceID();
id.setValue("0a0a4a35c72b3963000010f588e773d8046");
is[0].setIdentifier(id);
Version vsion = new Version();
vsion.setMarker("0:2006-12-06 10:30:13.338");
is[0].setVersion(vsion);
id.setValue("0a0a4a351eb101db000010f584899f284c7");
is[1].setIdentifier(id);
vsion.setMarker("0:2006-12-06 09:39:29.992");
is[1].setVersion(vsion);

SelectedMetadata sm = new SelectedMetadata();
sm.setMetadataBase(new ResourceID());
ResourcePath rp = new ResourcePath();
rp.setHierarchyType(HierarchyType.FOLDER);
sm.setMetadataBase(rp);
sm.setMetadataBase(new Version());

SpecificResourceSpecifier[] resSpec = stub.getBulkResourceMetadataReturnSpecific(is, sm);
for (int i = 0; i < resSpec.length; i++) {
    System.out.println("ID = " + resSpec[i].getFile().getResourceID().getValue());
    System.out.println("ID = " + resSpec[i].getFile().getResourcePath().getValue());
    System.out.println("ID = " + resSpec[i].getFile().getVersion().getMarker());
}
```

SOAP request example

Client invocation of the `getBulkResourceMetadataReturnSpecific` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <getBulkResourceMetadataReturnSpecific xmlns="http://xml.spss.com/repository/remote">
      <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4a35c72b3963000010f588e773d8046" xsi:type="ResourceID"/>
      </IdentificationSpecifier>
    </getBulkResourceMetadataReturnSpecific>
  </soapenv:Body>
</soapenv:Envelope>
```

```

    <Version marker="0:2006-12-06 10:30:13.338"/>
  </IdentificationSpecifier>
</IdentificationSpecifier xmlns="http://xml.spss.com/repository">
  <Identifier value="0a0a4a351eb101db0000010f584899f284c7" xsi:type="ResourceID"/>
  <Version marker="0:2006-12-06 09:39:29.992"/>
</IdentificationSpecifier>
<SelectedMetadata xmlns="http://xml.spss.com/repository">
  <MetadataBase xsi:type="ResourceID" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
  <MetadataBase hierarchyType="folder" xsi:type="ResourcePath"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
  <MetadataBase xsi:type="Version" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
</SelectedMetadata>
</getBulkResourceMetadataReturnSpecific>
</soapenv:Body>
</soapenv:Envelope>

```

SOAP response example

The server responds to a `getBulkResourceMetadataReturnSpecific` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <getBulkResourceMetadataReturnSpecificResponse xmlns="http://xml.spss.com/repository/remote">
      <SpecificResourceSpecifier xmlns="http://xml.spss.com/repository">
        <File canWrite="true" canDelete="true" canModifyPermissions="true">
          <ResourceID value="0a0a4a35c72b39630000010f588e773d8046"/>
          <Version marker="0:2006-12-06 10:30:13.338"/>
          <Title value="tree_model.sps"/>
          <ResourcePath value="/StatisticsLibrary/tree_model.sps" hierarchyType="folder"/>
          <AccessControlList poe="CMOR">
            <AccessControlEntry Permission="READ">
              <Principal ID="//gNative//$$security/everyoneGroup" DisplayName="-- everyone --"
                Name="$$security/everyoneGroup" IsGroup="true"/>
            </AccessControlEntry>
            <AccessControlEntry Permission="READ">
              <Principal ID="//uNative//admin" DisplayName="admin" Name="admin" IsGroup="false"/>
            </AccessControlEntry>
            <owner ID="//uNative//admin" DisplayName="admin" Name="admin" IsGroup="false"/>
          </AccessControlList>
        </File>
      </SpecificResourceSpecifier>
      <SpecificResourceSpecifier xmlns="http://xml.spss.com/repository">
        <File canWrite="true" canDelete="true" canModifyPermissions="true">
          <ResourceID value="0a0a4a351eb101db0000010f584899f284c7"/>
          <Version marker="0:2006-12-06 09:39:29.992"/>
          <Title value="pes.rptdesign"/>
          <ResourcePath value="/Reports/pes.rptdesign" hierarchyType="folder"/>
          <AccessControlList poe="CMOR">
            <AccessControlEntry Permission="READ">
              <Principal ID="//gNative//$$security/everyoneGroup" DisplayName="-- everyone --"
                Name="$$security/everyoneGroup" IsGroup="true"/>
            </AccessControlEntry>
            <AccessControlEntry Permission="READ">
              <Principal ID="//uNative//admin" DisplayName="admin" Name="admin" IsGroup="false"/>
            </AccessControlEntry>
            <owner ID="//uNative//admin" DisplayName="admin" Name="admin" IsGroup="false"/>
          </AccessControlList>
        </File>
      </SpecificResourceSpecifier>
    </getBulkResourceMetadataReturnSpecificResponse>
  </soapenv:Body>
</soapenv:Envelope>

```

The getChildren operation

Retrieves the immediate children of a specified parent. In addition, the operation allows the client to specify which metadata should be returned. Any metadata not requested that is not part of a collection will have a null value, so it should not attempt to be retrieved without checking for null or monitoring for a `NullPointerException`.

The information returned by this operation corresponds to resource versions that are visible for the credentials used in the web service call. Visibility depends on both label security and expiration settings.

- Expired versions are visible only to the resource owner and administrators.

- If the credentials are associated with the *Show All Versions* action or correspond to the owner of the resource, all versions of the file are visible. However, all of the labels may not be visible. Users with these credentials can also see and use the *LATEST* label on the resource.
- If the credentials are not associated with the *Show All Versions* action or do not correspond to the owner of the resource, only labeled resource versions are visible. Users with these credentials can see the *LATEST* version only if they have *Show Latest* action.

Input fields

The following table lists the input fields for the `getChildren` operation.

Table 38. Fields for `getChildren`.

Field	Type/Valid Values	Description
ParentIdentificationSpecifier	IdentificationSpecifier	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.
SelectedMetadata	SelectedMetadata	Provides a way to select specific metadata for retrieval or update

Return information

The following table identifies the information returned by the `getChildren` operation.

Table 39. Return Value.

Type	Description
ResourceSpecifier[]	Wrapper for a resource object. Used to define service interface parameter to preserve polymorphism.

Java example

The following example retrieves an array of all children, which would consist of both subfolders and files, of a parent folder. The only metadata returned would be content size, creation date, modification date, ACL, and title. It is not necessary to set values for the metadata, only to instantiate the objects.

```
ResourcePath rp = new ResourcePath();
rp.setValue("/myFolder");
SelectedMetadata sm = new SelectedMetadata();
sm.addMetadataBase(new Title());
sm.addMetadataBase(new CreationDate());
sm.addMetadataBase(new AccessControlList());
sm.addMetadataBase(new ModificationDate());
sm.addMetadataBase(new ContentSize());
ResourceSpecifier[] resources = stub.getChildren(getIDSpecifier(rp), sm);
```

Note that for the case of a folder child, which does not have a *content size* metadata instance, that particular request will be ignored. Only the selected metadata which is valid for the resource can be returned.

SOAP request example

Client invocation of the `getChildren` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

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



```

<soapenv:Header>
  <wsse:Security soapenv:mustUnderstand="0"
    xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
    <wsse:UsernameToken>
      <wsse:Username xsi:type="xsd:string">Native/validUser</wsse:Username>
      <wsse:Password xsi:type="xsd:string">password</wsse:Password>
    </wsse:UsernameToken>
  </wsse:Security>
  <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
    xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
</soapenv:Header>
<soapenv:Body>
  <getChildren xmlns="http://xml.spss.com/repository/remote">
    <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
      <identifier value="0a0a4aac00072ffb00000106747cdec691f5" xsi:type="ResourceID"
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
    </IdentificationSpecifier>
    <SelectedMetadata xmlns="http://xml.spss.com/repository">
      <MetadataBase xsi:type="Author"
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
      <MetadataBase language="EN" xsi:type="Description"
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
      <MetadataBase xsi:type="ObjectLastModifiedBy"
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
      <MetadataBase xsi:type="ObjectLastModifiedDate"
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
      <MetadataBase xsi:type="Title"
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
      <MetadataBase language="EN" xsi:type="Description"
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
      <MetadataBase xsi:type="MimeType"
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
      <MetadataBase xsi:type="ResourceID"
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
      <MetadataBase hierarchyType="folder" xsi:type="ResourcePath"
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
      <MetadataBase xsi:type="Version"
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
    </SelectedMetadata>
  </getChildren>
</soapenv:Body>
</soapenv:Envelope>

```

SOAP response example

The server responds to a `getChildren` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <getChildrenResponse xmlns="http://xml.spss.com/repository/remote">
      <ResourceSpecifier xmlns="http://xml.spss.com/repository">
        <Resource canWrite="true" canDelete="true" canModifyPermissions="true"
          xsi:type="File" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
          <ResourceID value="0a0a4aac00072ffb00000106747cdec691f9"/>
          <Version marker="0:2005-09-23 15:16:59.842"/>
          <Title value="test.txt"/>
          <ResourcePath value="/TextFiles/test.txt" hierarchyType="folder"/>
          <ObjectLastModifiedBy value="admin"/>
          <ObjectLastModifiedDate value="2005-09-23T15:17:00.217-05:00"/>
          <AccessControlList poe="CMOR">
            <AccessControlEntry Permission="READ">
              <Principal ID="//gNative//$$security/everyoneGroup"
                DisplayName="-- everyone --" Name="$$security/everyoneGroup"
                IsGroup="true"/>
            </AccessControlEntry>
            <AccessControlEntry Permission="READ">
              <Principal ID="//uNative//admin" DisplayName="admin" Name="admin" IsGroup="false"/>
            </AccessControlEntry>
            <owner ID="//uNative//admin" DisplayName="admin" Name="admin" IsGroup="false"/>
          </AccessControlList>
          <Author value="admin"/>
          <MimeType value="text/plain"/>
        </Resource>
      </ResourceSpecifier>
    </getChildrenResponse>
  </soapenv:Body>
</soapenv:Envelope>

```

The getChildrenOptions operation

Retrieves the immediate children of a specified parent that have a specific label or set of labels applied.

The information returned by this operation corresponds to resource versions that are visible for the credentials used in the web service call. Visibility depends on both label security and expiration settings.

- Expired versions are visible only to the resource owner and administrators.
- If the credentials are associated with the *Show All Versions* action or correspond to the owner of the resource, all versions of the file are visible. However, all of the labels may not be visible. Users with these credentials can also see and use the *LATEST* label on the resource.
- If the credentials are not associated with the *Show All Versions* action or do not correspond to the owner of the resource, only labeled resource versions are visible. Users with these credentials can see the *LATEST* version only if they have *Show Latest* action.

Input fields

The following table lists the input fields for the getChildrenOptions operation.

Table 40. Fields for getChildrenOptions.

Field	Type/Valid Values	Description
ParentIdentificationSpecifier	IdentificationSpecifier	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.
ChildrenSpecification	ChildrenSpecification	Expresses search criteria for querying the repository.

Return information

The following table identifies the information returned by the getChildrenOptions operation.

Table 41. Return Value.

Type	Description
ResourceSpecifier[]	Wrapper for a resource object. Used to define service interface parameter to preserve polymorphism.

Java example

The following example retrieves an array of all children that have the label *TEST* from the folder *myFolder*.

```
IdentificationSpecifier folderId = getIdentificationSpecifier("/somefolder", HierarchyType.FOLDER);
ChildrenSpecification childSpec = new ChildrenSpecification();

Version version = new Version();
version.addLabel("TEST");
ConditionalTerm term = new ConditionalTerm();
term.setMetadata(version);
//only the EQUAL condition is supported
term.setCondition(QueryCondition.EQUAL);
childSpec.addTerm(term);

SelectedMetadata selectedMetadata = new SelectedMetadata();
childSpec.setSelectedMetadata(selectedMetadata);

ResourceSpecifier[] results = stub.getChildrenOptions(folderId, childSpec);
```

SOAP request example

Client invocation of the `getChildrenOptions` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <getChildrenOptions xmlns="http://xml.spss.com/repository/remote">
      <ParentIdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="/myFolder" xsi:type="ResourcePath"/>
      </ParentIdentificationSpecifier>
      <ChildrenSpecification xmlns="http://xml.spss.com/repository">
        <term condition="equal" xsi:type="ConditionalTerm" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
          <metadata xsi:type="Version" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
            <label>TEST</label>
          </metadata>
        </term>
        <SelectedMetadata>
          <MetadataBase xsi:type="Version" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
        </SelectedMetadata>
      </ChildrenSpecification>
    </getChildrenOptions>
  </soapenv:Body>
</soapenv:Envelope>
```

SOAP response example

The server responds to a `getChildrenOptions` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <getChildrenOptionsResponse xmlns="http://xml.spss.com/repository/remote">
      <ResourceSpecifier xmlns="http://xml.spss.com/repository">
        <Resource isResourceLockingEnabled="true" canWrite="true" canDelete="true"
          canModifyPermissions="true" isOwner="true" canCreateNewVersion="true"
          isDeleted="false" xsi:type="File">
          <ResourceID value="0923d0b2b83629b3000001318aedb34c3d89"/>
          <Version marker="0:2011-08-29 15:37:27.867" latest="false">
            <label>TEST</label>
          </Version>
          <Title value="quarterly.rptdesign"/>
          <ResourcePath value="/myFolder/quarterly.rptdesign" hierarchyType="folder"/>
          <AccessControlList poe="CMOR">
            <AccessControlEntry Permission="READ">
              <Principal ID="//gNative//$$security/everyoneGroup"
                DisplayName="-- everyone --" Name="$$security/everyoneGroup"
                IsGroup="true"/>
            </AccessControlEntry>
            <AccessControlEntry Permission="WRITE">
              <Principal ID="//gNative//$$security/everyoneGroup"
                DisplayName="-- everyone --" Name="$$security/everyoneGroup"
                IsGroup="true"/>
            </AccessControlEntry>
            <AccessControlEntry Permission="READ">
              <Principal ID="//uNative//admin" DisplayName="admin" Name="admin"
                IsGroup="false"/>
            </AccessControlEntry>
            <owner ID="//uNative//admin" DisplayName="admin" Name="admin"
              IsGroup="false"/>
          </AccessControlList>
        </Resource>
      </ResourceSpecifier>
      <ResourceSpecifier xmlns="http://xml.spss.com/repository">
        <Resource isResourceLockingEnabled="true" canWrite="true" canDelete="true"
```

```

canModifyPermissions="true" isOwner="true" canCreateNewVersion="true"
isDeleted="false" xsi:type="File">
<ResourceID value="0923d0b2b83629b3000001318aedb34c3d5a"/>
<Version marker="1:2011-08-29 15:37:58.031" latest="true">
  <label>TEST</label>
</Version>
<Title value="monthly.rptdesign"/>
<ResourcePath value="/myFolder/monthly.rptdesign" hierarchyType="folder"/>
<AccessControlList poe="CMOR">
  <AccessControlEntry Permission="READ">
    <Principal ID="//gNative/$$security/everyoneGroup"
      DisplayName="-- everyone --" Name="$$security/everyoneGroup"
      IsGroup="true"/>
  </AccessControlEntry>
  <AccessControlEntry Permission="WRITE">
    <Principal ID="//gNative/$$security/everyoneGroup"
      DisplayName="-- everyone --" Name="$$security/everyoneGroup"
      IsGroup="true"/>
  </AccessControlEntry>
  <AccessControlEntry Permission="READ">
    <Principal ID="//uNative//admin" DisplayName="admin" Name="admin"
      IsGroup="false"/>
  </AccessControlEntry>
  <owner ID="//uNative//admin" DisplayName="admin" Name="admin"
    IsGroup="false"/>
  </AccessControlList>
</Resource>
</ResourceSpecifier>
</getChildrenOptionsResponse>
</soapenv:Body>
</soapenv:Envelope>

```

The getChildrenReturnSpecific operation

Retrieves the immediate children of a specified parent. In addition, the operation allows the client to specify which metadata should be returned. Any metadata not requested that is not part of a collection will have a null value, so it should not attempt to be retrieved without checking for null or monitoring for a `NullPointerException`.

The difference between this operation and the `getChildren` operation is the structure of the wrapper for the returned resources. The `getChildren` operation returns an array of `ResourceSpecifier` objects detailing the resources. Different resource types are handled through the use of `XMLSchema` instance types. In contrast, the `getChildrenReturnSpecific` operation returns an array of `SpecificResourceSpecifier` objects. Different resource types are handled through the use of different objects for the types. For example, instead of returning a `Resource` object of the `File` type, `getChildrenReturnSpecific` returns a `File` object. Clients that cannot properly handle instance types should use `getChildrenReturnSpecific` instead of `getChildren`.

The information returned by this operation corresponds to resource versions that are visible for the credentials used in the web service call. Visibility depends on both label security and expiration settings.

- Expired versions are visible only to the resource owner and administrators.
- If the credentials are associated with the *Show All Versions* action or correspond to the owner of the resource, all versions of the file are visible. However, all of the labels may not be visible. Users with these credentials can also see and use the *LATEST* label on the resource.
- If the credentials are not associated with the *Show All Versions* action or do not correspond to the owner of the resource, only labeled resource versions are visible. Users with these credentials can see the *LATEST* version only if they have *Show Latest* action.

Input fields

The following table lists the input fields for the `getChildrenReturnSpecific` operation.

Table 42. Fields for `getChildrenReturnSpecific`.

Field	Type/Valid Values	Description
<code>ParentIdentificationSpecifier</code>	<code>IdentificationSpecifier</code>	Wrapper for identification information (Id, path, version label, version marker). Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.
<code>SelectedMetadata</code>	<code>SelectedMetadata</code>	Provides a way to select specific metadata for retrieval or update

Return information

The following table identifies the information returned by the `getChildrenReturnSpecific` operation.

Table 43. Return Value.

Type	Description
<code>SpecificResourceSpecifier[]</code>	Wrapper for a resource object. Used to define service interface parameter to preserve polymorphism.

Java example

The following example retrieves an array of all children, which would consist of both subfolders and files, of a parent folder. The only metadata returned would be the author, who last modified the resource, and the date of the modification. It is not necessary to set values for the metadata, only to instantiate the objects.

```
IdentificationSpecifier id = new IdentificationSpecifier();
ResourceID id = new ResourceID();
id.setValue("0a0a4a35c75d16910000010eec1efbfc802f");
is.setIdentifier(id);

SelectedMetadata sm = new SelectedMetadata();
sm.addMetadataBase(new Author());
sm.addMetadataBase(new ObjectLastModifiedBy());
sm.addMetadataBase(new ObjectLastModifiedDate());
SpecificResourceSpecifier[] resources =
    stub.getChildrenReturnSpecific(is, sm);
```

SOAP request example

Client invocation of the `getChildrenReturnSpecific` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">Native/validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <getChildrenReturnSpecific xmlns="http://xml.spss.com/repository/remote">
```

```

<ParentIdentificationSpecifier xmlns="http://xml.spss.com/repository">
  <identifier value="0a0a4a35c75d16910000010eec1efbfc802f"/>
</ParentIdentificationSpecifier>
<SelectedMetadata xmlns="http://xml.spss.com/repository">
  <Author/>
  <ObjectLastModifiedBy/>
  <ObjectLastModifiedDate/>
</SelectedMetadata>
</getChildrenReturnSpecific>
</soapenv:Body>
</soapenv:Envelope>

```

SOAP response example

The server responds to a `getChildrenReturnSpecific` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <getChildrenReturnSpecificResponse xmlns="http://xml.spss.com/repository/remote">
      <SpecificResourceSpecifier xmlns="http://xml.spss.com/repository">
        <File canWrite="true" canDelete="true" canModifyPermissions="true">
          <ResourceID value="0a0a4a35bad1b0750000010f3a50fe4980e6"/>
          <Title value="drugplot.str"/>
          <ResourcePath value="/ModelerStreamLibrary/drugplot.str" hierarchyType="folder"/>
          <ObjectLastModifiedBy value="admin"/>
          <ObjectLastModifiedDate value="2006-11-30T14:19:21.253-06:00"/>
          <AccessControlList poe="CMOR">
            <AccessControlEntry Permission="READ">
              <Principal ID="//gNative//$$security/everyoneGroup" DisplayName="-- everyone --"
                Name="$$security/everyoneGroup" IsGroup="true"/>
            </AccessControlEntry>
            <AccessControlEntry Permission="READ">
              <Principal ID="//uNative//admin" DisplayName="admin" Name="admin" IsGroup="false"/>
            </AccessControlEntry>
            <owner ID="//uNative//admin" DisplayName="admin" Name="admin" IsGroup="false"/>
          </AccessControlList>
          <Author value="admin"/>
        </File>
      </SpecificResourceSpecifier>
      <SpecificResourceSpecifier xmlns="http://xml.spss.com/repository">
        <Folder canWrite="true" canDelete="true" canModifyPermissions="true" hasChildren="true"
          hasFolder="false">
          <ResourceID value="0a0a4a35c75d16910000010eec1efbfc8032"/>
          <Title value="Data Preparation"/>
          <ResourcePath value="/ModelerStreamLibrary/Data Preparation" hierarchyType="folder"/>
          <ObjectLastModifiedBy value="admin"/>
          <ObjectLastModifiedDate value="2006-11-15T09:07:15.060-06:00"/>
          <AccessControlList poe="CMOR">
            <AccessControlEntry Permission="READ">
              <Principal ID="//gNative//$$security/everyoneGroup" DisplayName="-- everyone --"
                Name="$$security/everyoneGroup" IsGroup="true"/>
            </AccessControlEntry>
            <AccessControlEntry Permission="READ">
              <Principal ID="//uNative//admin" DisplayName="admin" Name="admin" IsGroup="false"/>
            </AccessControlEntry>
            <owner ID="//uNative//admin" DisplayName="admin" Name="admin" IsGroup="false"/>
          </AccessControlList>
        </Folder>
      </SpecificResourceSpecifier>
      <SpecificResourceSpecifier xmlns="http://xml.spss.com/repository">
        <Folder canWrite="true" canDelete="true" canModifyPermissions="true" hasChildren="true"
          hasFolder="false">
          <ResourceID value="0a0a4a35c75d16910000010eec1efbfc8171"/>
          <Title value="Modeling"/>
          <ResourcePath value="/ModelerStreamLibrary/Modeling" hierarchyType="folder"/>
          <ObjectLastModifiedBy value="admin"/>
          <ObjectLastModifiedDate value="2006-11-15T09:08:18.740-06:00"/>
          <AccessControlList poe="CMOR">
            <AccessControlEntry Permission="READ">
              <Principal ID="//gNative//$$security/everyoneGroup" DisplayName="-- everyone --"
                Name="$$security/everyoneGroup" IsGroup="true"/>
            </AccessControlEntry>
            <AccessControlEntry Permission="READ">
              <Principal ID="//uNative//admin" DisplayName="admin" Name="admin" IsGroup="false"/>
            </AccessControlEntry>
            <owner ID="//uNative//admin" DisplayName="admin" Name="admin" IsGroup="false"/>
          </AccessControlList>
        </Folder>
      </SpecificResourceSpecifier>

```

```

<SpecificResourceSpecifier xmlns="http://xml.spss.com/repository">
  <Folder canWrite="true" canDelete="true" canModifyPermissions="true" hasChildren="true"
    hasFolder="false">
    <ResourceID value="0a0a4a35c75d16910000010eec1efbfc8132"/>
    <Title value="Data Understanding"/>
    <ResourcePath value="/ModelerStreamLibrary/Data Understanding" hierarchyType="folder"/>
    <ObjectLastModifiedBy value="admin"/>
    <ObjectLastModifiedDate value="2006-11-15T09:07:36.020-06:00"/>
    <AccessControlList poe="CMOR">
      <AccessControlEntry Permission="READ">
        <Principal ID="//gNative//$$security/everyoneGroup" DisplayName="-- everyone --"
          Name="$$security/everyoneGroup" IsGroup="true"/>
      </AccessControlEntry>
      <AccessControlEntry Permission="READ">
        <Principal ID="//uNative//admin" DisplayName="admin" Name="admin" IsGroup="false"/>
      </AccessControlEntry>
      <owner ID="//uNative//admin" DisplayName="admin" Name="admin" IsGroup="false"/>
    </AccessControlList>
  </Folder>
</SpecificResourceSpecifier>
</getChildrenReturnSpecificResponse>
</soapenv:Body>
</soapenv:Envelope>

```

The getCustomPropertyValues operation

Returns the values for custom properties that have been defined for a resource.

Input fields

The following table lists the input fields for the getCustomPropertyValues operation.

Table 44. Fields for getCustomPropertyValues.

Field	Type/Valid Values	Description
IdentificationSpecifier	IdentificationSpecifier	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

Return information

The following table identifies the information returned by the getCustomPropertyValues operation.

Table 45. Return Value.

Type	Description
CustomPropertyValue[]	The value assigned by a user to an object for a particular custom property.

Java example

The following function returns an array of CustomPropertyValue objects for a specified resource. The getResourceID method returns the identifier for the resource, which is assigned to an IdentificationSpecifier object using setIdentifier. The getCustomPropertyValues operation returns the array of values for this specifier.

```

public CustomPropertyValue[] getCustomPropertyValues(AdaptableResource resource)
  throws IOException, ServiceException {
  IdentificationSpecifier idSpecifier = new IdentificationSpecifier();
  idSpecifier.setIdentifier(resource.getResourceID());
  ContentRepository repository = getContentRepository();
  CustomPropertyValue[] customPropertyValues = repository.getCustomPropertyValues(idSpecifier);
  return customPropertyValues;
}

```

SOAP request example

Client invocation of the `getCustomPropertyValues` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">Native/validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <getCustomPropertyValues xmlns="http://xml.spss.com/repository/remote">
      <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4aac00072ffb00000106561fccf88148" xsi:type="ResourceID"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
      </IdentificationSpecifier>
    </getCustomPropertyValues>
  </soapenv:Body>
</soapenv:Envelope>
```

SOAP response example

The server responds to a `getCustomPropertyValues` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <getCustomPropertyValuesResponse xmlns="http://xml.spss.com/repository/remote">
      <CustomPropertyValue label="Reviewed by" identifier="0a0a4aac00072ffb00000106f3f7b05b3856"
        xmlns="http://xml.spss.com/repository">
        <select multipleSelect="false">
          <selectionValue isSelected="true" value="Richard"/>
          <selectionValue value="Patrick"/>
          <selectionValue value="John"/>
        </select>
      </CustomPropertyValue>
      <CustomPropertyValue label="Reviewed" identifier="0a0a4aac00072ffb00000106561fccf88967"
        xmlns="http://xml.spss.com/repository">
        <freeform type="boolean"/>
      </CustomPropertyValue>
    </getCustomPropertyValuesResponse>
  </soapenv:Body>
</soapenv:Envelope>
```

The `getFault` operation

For internal use only. Consumers of the web service should not use this operation.

Input fields

The following table lists the input fields for the `getFault` operation.

Table 46. Fields for `getFault`.

Field	Type/Valid Values	Description
test	int	

The getFile operation

Retrieving a resource can be achieved in several ways: `getResource`, `getFile`, `getChildren`, and `query`. In all cases but `getFile`, only the metadata of the resource is returned. The `getFile` operation returns the metadata as well as an `InputStream` (indirectly) to the content. The specific version of the file, both metadata and content, may be retrieved through the version information included in the identification specifier. If the version information is null, the most current version will be returned. The version can be specified by either marker or label. If the version does not exist, an exception is thrown.

The file content can be delivered directly (BASE64), or as an attachment (MIME or DIME). To optimize performance, only use BASE64 for small files.

The information returned by this operation corresponds to resource versions that are visible for the credentials used in the web service call. Visibility depends on both label security and expiration settings.

- Expired versions are visible only to the resource owner and administrators.
- If the credentials are associated with the *Show All Versions* action or correspond to the owner of the resource, all versions of the file are visible. However, all of the labels may not be visible. Users with these credentials can also see and use the *LATEST* label on the resource.
- If the credentials are not associated with the *Show All Versions* action or do not correspond to the owner of the resource, only labeled resource versions are visible. Users with these credentials can see the *LATEST* version only if they have *Show Latest* action.

Input fields

The following table lists the input fields for the `getFile` operation.

Table 47. Fields for `getFile`.

Field	Type/Valid Values	Description
IdentificationSpecifier	IdentificationSpecifier	Wrapper for identification information (Id, path, version label, version marker). Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.
DeliveryType	DeliveryType	Defines an enumeration that identifies accepted methods of delivery to retrieve binary content.
SelectedMetadata	SelectedMetadata	Provides a way to select specific metadata for retrieval or update

Return information

The following table identifies the information returned by the `getFile` operation.

Table 48. Return Value.

Type	Description
ResourceSpecifier	Wrapper for a resource object. Used to define service interface parameter to preserve polymorphism.

Java example

The following example retrieves the content for a file resource, writing the content to a file on the local file system.

Notice that the transport type is specified as MIME, which is the default. Use MIME for a Java client and DIME for a .NET client. Both MIME and DIME are attachments. If the content is small, it can be transported inside the SOAP envelope using BASE64.

```
ResourcePath rp = new ResourcePath();
rp.setValue("/myfolderName/myNewFile.xls");
Version v = new Version();
v.addLabel("PRODUCTION");
ResourceSpecifier rs=stub.getFile(getResourceSpecifier(rp,v), DeliveryType.MIME);
File f = (File)rs.getResource();
Attachment at = f.getBinaryContent().getAttachment();
String href = at.getHref();
org.apache.axis.client.Stub st = (org.apache.axis.client.Stub)stub;
AttachmentPart[] attachments = (AttachmentPart[])st.getAttachments();
if (attachments.length != 0){
    AttachmentPart ap = null;
    boolean bAttFound = false;
    for (int i = 0; i < attachments.length; i++) {
        ap = attachments[i];
        if ( ap.getContentId().equals(href)) {
            bAttFound = true;
            break;
        }
    }
}
if (bAttFound) {
    java.io.File fo = new java.io.File("c:\\myOutput\\retrieve.xls");
    FileOutputStream out = new FileOutputStream(fo);
    DataHandler dh = ap.getDataHandler();
    InputStream in = dh.getInputStream();
    byte[] buffer = new byte[256];
    int bytesRead = 0;
    while (true) {
        bytesRead = in.read(buffer);
        if (bytesRead == -1) {
            break;
        }
        out.write(buffer, 0, bytesRead);
    }
    out.close();
    in.close();
}
}
```

SOAP request example

Client invocation of the getFile operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
<soapenv:Header>
<wsse:Security soapenv:mustUnderstand="0"
xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
<wsse:UsernameToken>
<wsse:Username xsi:type="xsd:string">Native/validUser</wsse:Username>
<wsse:Password xsi:type="xsd:string">password</wsse:Password>
</wsse:UsernameToken>
</wsse:Security>
<ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
</soapenv:Header>
<soapenv:Body>
<getFile xmlns="http://xml.spss.com/repository/remote">
<IdentificationSpecifier xmlns="http://xml.spss.com/repository">
<identifier value="0a0a4aac00072ffb00000106a7c0f12d8116" xsi:type="ResourceID"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
<Version marker="0:2005-09-30 14:50:59.086"/>
</IdentificationSpecifier>
<acceptDelivery>MIME</acceptDelivery>
<ns2:SelectedMetadata xsi:nil="true" xmlns:ns2="http://xml.spss.com/repository"/>
</getFile>
</soapenv:Body>
</soapenv:Envelope>
```

SOAP response example

The server responds to a `getFile` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <getFileResponse xmlns="http://xml.spss.com/repository/remote">
      <ResourceSpecifier xmlns="http://xml.spss.com/repository">
        <Resource canWrite="true" canDelete="true" canModifyPermissions="true"
          xsi:type="File" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
          <ResourceID value="0a0a4aac00072ffb00000106561fccf88177"/>
          <Version marker="0:2005-09-14 14:49:23.234">
            <label>Production</label>
          </Version>
          <CreationDate value="2005-09-14T14:49:23.233-05:00"/>
          <ModificationDate value="2005-09-14T14:49:24.170-05:00"/>
          <Title value="M01_TrainTestPartition.str"/>
          <Description value="Modeler Stream Library:
            M01_TrainTestPartition.str.&#xa;" language="en"/>
          <ResourcePath value="/ModelerStreamLibrary/Modeling/M01_TrainTestPartition.str"
            hierarchyType="folder"/>
          <CreatedBy value="admin"/>
          <ObjectCreationDate value="2005-09-14T14:49:22.967-05:00"/>
          <ObjectLastModifiedBy value="admin"/>
          <ObjectLastModifiedDate value="2005-09-14T14:49:24.203-05:00"/>
          <AccessControlList poe="CMOR">
            <AccessControlEntry Permission="READ">
              <Principal ID="//gNative//$$security/everyoneGroup"
                DisplayName="-- everyone --" Name="//$security/everyoneGroup"
                IsGroup="true"/>
            </AccessControlEntry>
            <AccessControlEntry Permission="READ">
              <Principal ID="//uNative//admin" DisplayName="admin"
                Name="admin" IsGroup="false"/>
            </AccessControlEntry>
            <owner ID="//uNative//admin" DisplayName="admin" Name="admin"
                IsGroup="false"/>
          </AccessControlList>
          <Author value="Bart Simpson"/>
          <MimeType value="application/x-vnd.spss-clementine-stream"/>
          <ContentSize value="9727"/>
          <BinaryContent>
            <Attachment href="3AAFA98704B70A827D56DD9057B3DE5D"/>
          </BinaryContent>
          <associatedTopicList>
            <topicIdentifier value="0a0a4aac00072ffb00000106561fccf88043"
              xsi:type="ResourceID"/>
            <topicIdentifier value="0a0a4aac00072ffb00000106561fccf88041"
              xsi:type="ResourceID"/>
          </associatedTopicList>
        </Resource>
      </ResourceSpecifier>
    </getFileResponse>
  </soapenv:Body>
</soapenv:Envelope>
```

The `getFileReturnSpecific` operation

Retrieving a resource can be achieved in several ways: `getResource`, `getFile`, `getChildren`, and `query`. In all cases but `getFile`, only the metadata of the resource is returned. The `getFile` operation returns the metadata as well as an `InputStream` (indirectly) to the content. The specific version of the file, both metadata and content, may be retrieved through the version information included in the identification specifier. If the version information is null, the most current version will be returned. The version can be specified by either marker or label. If the version does not exist, an exception is thrown.

The file content can be delivered directly (BASE64), or as an attachment (MIME or DIME). To optimize performance, only use BASE64 for small files.

The difference between this operation and the `getFile` operation is the structure of the wrapper for the returned resources. The `getFile` operation returns a `ResourceSpecifier` object detailing the resource. Different resource types are handled through the use of XMLSchema instance types. In contrast, the

getFileReturnSpecific operation returns a SpecificResourceSpecifier object. Different resource types are handled through the use of different objects for the types. For example, instead of returning a Resource object of the File type, getFileReturnSpecific returns a File object. Clients that cannot properly handle instance types should use getFileReturnSpecific instead of getFile.

The information returned by this operation corresponds to resource versions that are visible for the credentials used in the web service call. Visibility depends on both label security and expiration settings.

- Expired versions are visible only to the resource owner and administrators.
- If the credentials are associated with the *Show All Versions* action or correspond to the owner of the resource, all versions of the file are visible. However, all of the labels may not be visible. Users with these credentials can also see and use the *LATEST* label on the resource.
- If the credentials are not associated with the *Show All Versions* action or do not correspond to the owner of the resource, only labeled resource versions are visible. Users with these credentials can see the *LATEST* version only if they have *Show Latest* action.

Input fields

The following table lists the input fields for the getFileReturnSpecific operation.

Table 49. Fields for getFileReturnSpecific.

Field	Type/Valid Values	Description
IdentificationSpecifier	IdentificationSpecifier	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.
DeliveryType	DeliveryType	Defines an enumeration that identifies accepted methods of delivery to retrieve binary content.
SelectedMetadata	SelectedMetadata	Provides a way to select specific metadata for retrieval or update

Return information

The following table identifies the information returned by the getFileReturnSpecific operation.

Table 50. Return Value.

Type	Description
SpecificResourceSpecifier	Wrapper for a resource object. Used to define service interface parameter to preserve polymorphism.

Java example

The following example retrieves the content for a file resource, writing the content to a file on the local file system.

```

IdentificationSpecifier id = new IdentificationSpecifier();
ResourceID id = new ResourceID();
id.setValue("0a0a4a353da969fa0000010ef0fcc01f8649");
is.setIdentifier(id);

SpecificResourceSpecifier rs = stub.getFileReturnSpecific(is, DeliveryType.MIME);
File f = rs.getFile();
Attachment at = f.getBinaryContent().getAttachment();
String href = at.getHref();
org.apache.axis.client.Stub st = (org.apache.axis.client.Stub)stub;

```

```

AttachmentPart[] attachments = (AttachmentPart[])st.getAttachments();
if (attachments.length != 0){
    AttachmentPart ap = null;
    boolean bAttFound = false;
    for (int i = 0; i < attachments.length; i++) {
        ap = attachments[i];
        if ( ap.getContentId().equals(href)) {
            bAttFound = true;
            break;
        }
    }
    if (bAttFound) {
        java.io.File fo = new java.io.File("c:\\myOutput\\retrieve.xls");
        FileOutputStream out = new FileOutputStream(fo);
        DataHandler dh = ap.getDataHandler();
        InputStream in = dh.getInputStream();
        byte[] buffer = new byte[256];
        int bytesRead = 0;
        while (true) {
            bytesRead = in.read(buffer);
            if (bytesRead == -1) {
                break;
            }
            out.write(buffer, 0, bytesRead);
        }
        out.close();
        in.close();
    }
}

```

SOAP request example

Client invocation of the `getFileReturnSpecific` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">Native/validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <getFileReturnSpecific xmlns="http://xml.spss.com/repository/remote">
      <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4a353da969fa0000010ef0fcc01f8649"/>
      </IdentificationSpecifier>
      <acceptDelivery>MIME</acceptDelivery>
    </getFileReturnSpecific>
  </soapenv:Body>
</soapenv:Envelope>

```

SOAP response example

The server responds to a `getFileReturnSpecific` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <getFileReturnSpecificResponse xmlns="http://xml.spss.com/repository/remote">
      <SpecificResourceSpecifier xmlns="http://xml.spss.com/repository">
        <File canWrite="true" canDelete="true" canModifyPermissions="true">
          <ResourceID value="0a0a4a353da969fa0000010ef0fcc01f8649"/>
          <Version marker="0:2006-11-17 09:59:42.666"/>
          <CreationDate value="2006-11-17T09:59:42.667-06:00"/>
          <ModificationDate value="2006-11-17T09:59:42.933-06:00"/>
          <Title value="tree_model.sps"/>
          <ResourcePath value="/StatisticsLibrary/tree_model.sps" hierarchyType="folder"/>
          <CreatedBy value="admin"/>
          <ObjectCreationDate value="2006-11-17T09:59:42.573-06:00"/>
          <ObjectLastModifiedBy value="admin"/>
        </File>
      </SpecificResourceSpecifier>
    </getFileReturnSpecificResponse>
  </soapenv:Body>
</soapenv:Envelope>

```

```

<ObjectLastModifiedDate value="2006-11-17T09:59:42.933-06:00"/>
<AccessControlList poe="CMOR">
  <AccessControlEntry Permission="READ">
    <Principal ID="//gNative//$$security/everyoneGroup" DisplayName="-- everyone --"
      Name="$$security/everyoneGroup" IsGroup="true"/>
  </AccessControlEntry>
  <AccessControlEntry Permission="READ">
    <Principal ID="//uNative//admin" DisplayName="admin" Name="admin" IsGroup="false"/>
  </AccessControlEntry>
  <owner ID="//uNative//admin" DisplayName="admin" Name="admin" IsGroup="false"/>
</AccessControlList>
<Author value="admin"/>
<MimeType value="application/x-vnd.spss-spss-syntax"/>
<ContentSize value="682"/>
<BinaryContent>
  <Attachment href="B736AFD5CFD3736D19233CD1C0BB2BA3"/>
</BinaryContent>
</File>
</SpecificResourceSpecifier>
</getFileReturnSpecificResponse>
</soapenv:Body>
</soapenv:Envelope>

```

The getIdentificationSpecifier operation

Retrieves an identification specifier for a specified resource based on the internal implementation identifier.

Input fields

The following table lists the input fields for the getIdentificationSpecifier operation.

Table 51. Fields for getIdentificationSpecifier.

Field	Type/Valid Values	Description
implementationID	string	Implementation ID for the resource.

Return information

The following table identifies the information returned by the getIdentificationSpecifier operation.

Table 52. Return Value.

Type	Description
IdentificationSpecifier	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

Java example

The following example retrieves the identification specifier for the resource corresponding to the supplied implementation ID.

```

String implId = "0a0a4aac00072ffb000001094fa9f57eca1c";
IdentificationSpecifier is = stub.getIdentificationSpecifier(implId);
System.out.println("Implementation ID = " + implId);
System.out.println("Identification Specifier = " +
  is.getIdentifier().getValue());
System.out.println("Version = " + is.getVersion().getMarker());

```

SOAP request example

Client invocation of the getIdentificationSpecifier operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <getIdentificationSpecifier xmlns="http://xml.spss.com/repository/remote">
      <implementationID>0a0a4aac00072ffb000001094fa9f57eca1c</implementationID>
    </getIdentificationSpecifier>
  </soapenv:Body>
</soapenv:Envelope>

```

SOAP response example

The server responds to a `getIdentificationSpecifier` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <getIdentificationSpecifierResponse xmlns="http://xml.spss.com/repository/remote">
      <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4aac00072ffb000001094fa9f57ec98e" xsi:type="ResourceID"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
        <Version marker="3:2006-02-21 09:32:05.218"/>
      </IdentificationSpecifier>
    </getIdentificationSpecifierResponse>
  </soapenv:Body>
</soapenv:Envelope>

```

The `getLabelSecurity` operation

Retrieves the security information for a specified label in the system.

Input fields

The following table lists the input fields for the `getLabelSecurity` operation.

Table 53. Fields for `getLabelSecurity`.

Field	Type/Valid Values	Description
label	string	The label for which security information will be retrieved.

Return information

The following table identifies the information returned by the `getLabelSecurity` operation.

Table 54. Return Value.

Type	Description
SecureLabel	Wrapper for a secure label, contains the label and it's Access Control List (ACL).

Java example

To access the security definition for a single label, supply the `getLabelSecurity` operation with a string corresponding to the label. The operation returns a `SecureLabel` object containing an `AccessControlList` object defining which principals have which permissions for the label.

```
String myLabel = "Production";
SecureLabel labelSec = stub.getLabelSecurity(myLabel);

System.out.println("Label = " + labelSec.getLabel());
System.out.println("Can read = " + labelSec.getCanRead());
System.out.println("Can modify = " + labelSec.getCanModify());
AccessControlList acl = labelSec.getAcl();
AccessControlEntry[] ace = acl.getAccessControlEntry();
for (int j = 0; j < ace.length; j++) {
    System.out.println("Permission = " + ace[j].getPermission().toString());
    System.out.println("Principal = " + ace[j].getPrincipal().getDisplayName());
}
```

SOAP request example

Client invocation of the `getLabelSecurity` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <getLabelSecurity xmlns="http://xml.spss.com/repository/remote">
      <label>Production</label>
    </getLabelSecurity>
  </soapenv:Body>
</soapenv:Envelope>
```

SOAP response example

The server responds to a `getLabelSecurity` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <getLabelSecurityResponse xmlns="http://xml.spss.com/repository/remote">
      <SecureLabel label="Production" canRead="true" canModify="true"
        xmlns="http://xml.spss.com/repository">
        <acl>
          <AccessControlEntry Permission="READ">
            <Principal ID="//uAD/spss/aessa" DisplayName="aessa (spss)"
              Name="aessa" IsGroup="false"/>
          </AccessControlEntry>
          <AccessControlEntry Permission="MODIFY">
            <Principal ID="//uAD/spss/kkruger" DisplayName="kkruiger (spss)"
              Name="kkruiger" IsGroup="false"/>
          </AccessControlEntry>
          <AccessControlEntry Permission="READ">
            <Principal ID="//uAD/spss/kkruger" DisplayName="kkruiger (spss)"
              Name="kkruiger" IsGroup="false"/>
          </AccessControlEntry>
          <owner ID="" Name=""/>
        </acl>
      </SecureLabel>
    </getLabelSecurityResponse>
  </soapenv:Body>
</soapenv:Envelope>
```

The getResource operation

Returns all metadata describing a resource. In contrast, operations such as `getChildren` or `query` return a selected subset of metadata. To obtain content for a resource, use `getFile`.

The metadata for a specific version of a resource may be specified by specifying a version in the identification specifier. If the version information is null, the most current version will be returned. The version can be specified by either marker or label. If the version does not exist, an exception will be thrown.

The information returned by this operation corresponds to resource versions that are visible for the credentials used in the web service call. Visibility depends on both label security and expiration settings.

- Expired versions are visible only to the resource owner and administrators.
- If the credentials are associated with the *Show All Versions* action or correspond to the owner of the resource, all versions of the file are visible. However, all of the labels may not be visible. Users with these credentials can also see and use the *LATEST* label on the resource.
- If the credentials are not associated with the *Show All Versions* action or do not correspond to the owner of the resource, only labeled resource versions are visible. Users with these credentials can see the *LATEST* version only if they have *Show Latest* action.

Input fields

The following table lists the input fields for the `getResource` operation.

Table 55. Fields for `getResource`.

Field	Type/Valid Values	Description
IdentificationSpecifier	IdentificationSpecifier	Wrapper for identification information (Id, path, version label, version marker). Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

Return information

The following table identifies the information returned by the `getResource` operation.

Table 56. Return Value.

Type	Description
ResourceSpecifier	Wrapper for a resource object. Used to define service interface parameter to preserve polymorphism.

Java example

The following function accepts an identifier and a `Version` object identifying a specific resource to be retrieved. The `setIdentifier` and `setVersion` methods assign this information to an `IdentificationSpecifier` object. The `getResource` operation returns a resource specifier for this object.

```
private Resource getResourceFromServer(Identifier identifier, Version version)
    throws ResourceNotFoundException, RepositoryDatabaseException,
        ResourceAuthorizationException, RepositoryException,
        RemoteException, IOException, ServiceException {
    IdentificationSpecifier identification = new IdentificationSpecifier();
    identification.setIdentifier(identifier);
    identification.setVersion(version);
}
```

```

ResourceSpecifier resourceSpecifier =
    getContentRepository().getResource(identification);
return resourceSpecifier.getResource();
}

```

SOAP request example

Client invocation of the `getResource` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">Native/validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <getResource xmlns="http://xml.spss.com/repository/remote">
      <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="/" hierarchyType="folder" xsi:type="ResourcePath"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
      </IdentificationSpecifier>
    </getResource>
  </soapenv:Body>
</soapenv:Envelope>

```

SOAP response example

The server responds to a `getResource` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <getResourceResponse xmlns="http://xml.spss.com/repository/remote">
      <ResourceSpecifier xmlns="http://xml.spss.com/repository">
        <Resource canWrite="true" canDelete="true" canModifyPermissions="true"
          hasChildren="true" xsi:type="Folder" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
          <ResourceID value="00000000000000000000000000000000000000000000cc"/>
          <Title value="/" />
          <ResourcePath value="/" hierarchyType="server"/>
          <ObjectCreationDate value="2005-06-13T16:04:33.000-05:00"/>
          <ObjectLastModifiedDate value="2005-09-14T14:30:05.597-05:00"/>
          <AccessControlList poe="CMOR">
            <AccessControlEntry Permission="READ">
              <Principal ID="//gNative//$$security/everyoneGroup"
                DisplayName="-- everyone --" Name="//$security/everyoneGroup" IsGroup="true"/>
            </AccessControlEntry>
          </AccessControlList>
        </Resource>
      </ResourceSpecifier>
    </getResourceResponse>
  </soapenv:Body>
</soapenv:Envelope>

```

The `getResourceImplementationId` operation

Returns the internal identifier for a repository resource. For example, the identifier for an `EventCluster` can be used when managing jobs from a client.

The information returned by this operation corresponds to resource versions that are visible for the credentials used in the web service call. Visibility depends on both label security and expiration settings.

- Expired versions are visible only to the resource owner and administrators.

- If the credentials are associated with the *Show All Versions* action or correspond to the owner of the resource, all versions of the file are visible. However, all of the labels may not be visible. Users with these credentials can also see and use the *LATEST* label on the resource.
- If the credentials are not associated with the *Show All Versions* action or do not correspond to the owner of the resource, only labeled resource versions are visible. Users with these credentials can see the *LATEST* version only if they have *Show Latest* action.

Input fields

The following table lists the input fields for the `getResourceImplementationId` operation.

Table 57. Fields for `getResourceImplementationId`.

Field	Type/Valid Values	Description
IdentificationSpecifier	IdentificationSpecifier	Wrapper for identification information (Id, path, version label, version marker). Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

Return information

The following table identifies the information returned by the `getResourceImplementationId` operation.

Table 58. Return Value.

Type	Description
ResourceImplementationId	Exposes the underlying identifier for the CMOR object representing a particular version of a particular resource

Java example

The following example retrieves the implementation ID for the resource corresponding to the supplied identification specifier.

```

IdentificationSpecifier is = new IdentificationSpecifier();
ResourceID id = new ResourceID();
id.setValue("0a0a4aac00072ffb000001094fa9f57ea237");
is.setIdentifier(id);
Version vsion = new Version();
vsion.setMarker("2:2006-02-14 18:01:34.257");
is.setVersion(vSION);
ResourceImplementationId implId = stub.getResourceImplementationId(is);
System.out.println("Identification Specifier = " +
    implId.getResourceId().getIdentifier().getValue());
System.out.println("Version = " + implId.getResourceId().getVersion().getMarker());
System.out.println("Implementation ID = " + implId.getId().getValue());

```

SOAP request example

Client invocation of the `getResourceImplementationId` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
  </soapenv:Header>

```

```

    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
    xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <getResourceImplementationId xmlns="http://xml.spss.com/repository/remote">
      <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4aac00072ffb000001094fa9f57ea237" xsi:type="ResourceID"
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
        <Version marker="2:2006-02-14 18:01:34.257"/>
      </IdentificationSpecifier>
    </getResourceImplementationId>
  </soapenv:Body>
</soapenv:Envelope>

```

SOAP response example

The server responds to a `getResourceImplementationId` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <getResourceImplementationIdResponse xmlns="http://xml.spss.com/repository/remote">
      <ResourceImplementationId xmlns="http://xml.spss.com/repository">
        <id value="0a0a4aac00072ffb000001094fa9f57ea2d9"/>
        <version marker="0:2006-02-14 18:01:34.32"/>
        <resourceId>
          <identifier value="0a0a4aac00072ffb000001094fa9f57ea237" xsi:type="ResourceID"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
          <Version marker="2:2006-02-14 18:01:34.257"/>
        </resourceId>
      </ResourceImplementationId>
    </getResourceImplementationIdResponse>
  </soapenv:Body>
</soapenv:Envelope>

```

The `getResourceImplementationIds` operation

Returns a set of internal identifiers for repository resources.

The information returned by this operation corresponds to resource versions that are visible for the credentials used in the web service call. Visibility depends on both label security and expiration settings.

- Expired versions are visible only to the resource owner and administrators.
- If the credentials are associated with the *Show All Versions* action or correspond to the owner of the resource, all versions of the file are visible. However, all of the labels may not be visible. Users with these credentials can also see and use the *LATEST* label on the resource.
- If the credentials are not associated with the *Show All Versions* action or do not correspond to the owner of the resource, only labeled resource versions are visible. Users with these credentials can see the *LATEST* version only if they have *Show Latest* action.

Input fields

The following table lists the input fields for the `getResourceImplementationIds` operation.

Table 59. Fields for `getResourceImplementationIds`.

Field	Type/Valid Values	Description
IdentificationSpecifier	IdentificationSpecifier[]	Wrapper for identification information (Id, path, version label, version marker). Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

Return information

The following table identifies the information returned by the `getResourceImplementationIds` operation.

Table 60. Return Value.

Type	Description
<code>ResourceImplementationId[]</code>	Exposes the underlying identifier for the CMOR object representing a particular version of a particular resource

Java example

The following example retrieves the implementation IDs for the resources corresponding to the supplied identification specifiers.

```
IdentificationSpecifier[] is = new IdentificationSpecifier[2];
ResourceID id = new ResourceID();
id.setValue("0a0a4aac00072ffb000001094fa9f57e8028");
is[0].setIdentifier(id);
id.setValue("0a0a4aac00072ffb000001094fa9f57e8035");
is[1].setIdentifier(id);
ResourceImplementationId[] implId = stub.getResourceImplementationIds(is);
for (int i = 0; i < implId.length; i++) {
    System.out.println("Identification Specifier = " +
        implId[i].getResourceId().getIdentifier().getValue());
    System.out.println("Implementation ID = " + implId[i].getId().getValue());
}
```

SOAP request example

Client invocation of the `getResourceImplementationIds` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <getResourceImplementationIds xmlns="http://xml.spss.com/repository/remote">
      <identificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4aac00072ffb000001094fa9f57e8028" xsi:type="ResourceID"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
      </identificationSpecifier>
      <identificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4aac00072ffb000001094fa9f57e8035" xsi:type="ResourceID"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
      </identificationSpecifier>
    </getResourceImplementationIds>
  </soapenv:Body>
</soapenv:Envelope>
```

SOAP response example

The server responds to a `getResourceImplementationIds` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <getResourceImplementationIdsResponse xmlns="http://xml.spss.com/repository/remote">
      <ResourceImplementationId xmlns="http://xml.spss.com/repository">
        <id value="0a0a4aac00072ffb000001094fa9f57e8031"/>
      </ResourceImplementationId>
    </getResourceImplementationIdsResponse>
  </soapenv:Body>
</soapenv:Envelope>
```

```

<version marker="0:2006-02-09 10:47:56.211">
  <label>Production</label>
</version>
<resourceId>
  <identifier value="0a0a4aac00072ffb000001094fa9f57e8028" xsi:type="ResourceID"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
</resourceId>
</ResourceImplementationId>
<ResourceImplementationId xmlns="http://xml.spss.com/repository">
  <id value="0a0a4aac00072ffb000001094fa9f57e803d"/>
  <version marker="0:2006-02-09 10:47:58.336">
    <label>Production</label>
  </version>
  <resourceId>
    <identifier value="0a0a4aac00072ffb000001094fa9f57e8035" xsi:type="ResourceID"
      xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
  </resourceId>
</ResourceImplementationId>
</getResourceImplementationIdsResponse>
</soapenv:Body>
</soapenv:Envelope>

```

The getResourceMaintenanceProviders operation

This operation is for internal use only.

Return information

The following table identifies the information returned by the getResourceMaintenanceProviders operation.

Table 61. Return Value.

Type	Description
ResourceMaintenanceProviderSpecifier[]	Wrapper for a resource maintenance provider. Used to define service interface parameter to preserve polymorphism.

The getResourceReturnSpecific operation

Returns all metadata describing a resource. In contrast, operations such as getChildren or query return a selected subset of metadata. To obtain content for a resource, use getFile.

The metadata for a specific version of a resource may be specified by specifying a version in the identification specifier. If the version information is null, the most current version will be returned. The version can be specified by either marker or label. If the version does not exist, an exception will be thrown.

The difference between this operation and the getResource operation is the structure of the wrapper for the returned resource. The getResource operation returns a ResourceSpecifier object detailing the resource. Different resource types are handled through the use of XMLSchema instance types. In contrast, the getResourceReturnSpecific operation returns a SpecificResourceSpecifier object. Different resource types are handled through the use of different objects for the types. For example, instead of returning a Resource object of the File type, getResourceReturnSpecific returns a File object. Clients that cannot properly handle instance types should use getResourceReturnSpecific instead of getResource.

The information returned by this operation corresponds to resource versions that are visible for the credentials used in the web service call. Visibility depends on both label security and expiration settings.

- Expired versions are visible only to the resource owner and administrators.
- If the credentials are associated with the *Show All Versions* action or correspond to the owner of the resource, all versions of the file are visible. However, all of the labels may not be visible. Users with these credentials can also see and use the *LATEST* label on the resource.

- If the credentials are not associated with the *Show All Versions* action or do not correspond to the owner of the resource, only labeled resource versions are visible. Users with these credentials can see the *LATEST* version only if they have *Show Latest* action.

Input fields

The following table lists the input fields for the `getResourceReturnSpecific` operation.

Table 62. Fields for `getResourceReturnSpecific`.

Field	Type/Valid Values	Description
IdentificationSpecifier	IdentificationSpecifier	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

Return information

The following table identifies the information returned by the `getResourceReturnSpecific` operation.

Table 63. Return Value.

Type	Description
SpecificResourceSpecifier	Wrapper for a resource object. Used to define service interface parameter to preserve polymorphism.

Java example

The following example returns the metadata for a file resource.

```

IdentificationSpecifier id = new IdentificationSpecifier();
ResourceID id = new ResourceID();
id.setValue("0a0a4a35514a6d600000010f3466362980bf");
is.setIdentifier(id);

SpecificResourceSpecifier rs = stub.getResourceReturnSpecific(is);
File f = rs.getFile();

```

SOAP request example

Client invocation of the `getResourceReturnSpecific` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">Native/validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <getResourceReturnSpecific xmlns="http://xml.spss.com/repository/remote">
      <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4a35514a6d600000010f3466362980bf"/>
      </IdentificationSpecifier>
    </getResourceReturnSpecific>
  </soapenv:Body>
</soapenv:Envelope>

```

SOAP response example

The server responds to a `getResourceReturnSpecific` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <getResourceReturnSpecificResponse xmlns="http://xml.spss.com/repository/remote">
      <SpecificResourceSpecifier xmlns="http://xml.spss.com/repository">
        <File canWrite="true" canDelete="true" canModifyPermissions="true">
          <ResourceID value="0a0a4a35514a6d60000010f3466362980bf"/>
          <Version marker="0:2006-11-29 11:54:51.039"/>
          <CreationDate value="2006-11-29T11:54:51.040-06:00"/>
          <ModificationDate value="2006-11-29T11:54:51.477-06:00"/>
          <Title value="sa"/>
          <ResourcePath value="/sa" hierarchyType="credential"/>
          <CreatedBy value="admin"/>
          <ObjectCreationDate value="2006-11-29T11:54:51.040-06:00"/>
          <ObjectLastModifiedBy value="admin"/>
          <ObjectLastModifiedDate value="2006-11-29T11:54:51.477-06:00"/>
          <AccessControlList poe="CMOR">
            <AccessControlEntry Permission="READ">
              <Principal ID="//gNative//$$security/everyoneGroup" DisplayName="-- everyone --"
                Name="$$security/everyoneGroup" IsGroup="true"/>
            </AccessControlEntry>
            <owner ID="//uNative//admin" DisplayName="admin" Name="admin" IsGroup="false"/>
          </AccessControlList>
          <Author value="admin"/>
          <MimeType value="application/x-vnd.spss-credentials"/>
          <ContentSize value="0"/>
          <ContentLanguage value="Unknown"/>
        </File>
      </SpecificResourceSpecifier>
    </getResourceReturnSpecificResponse>
  </soapenv:Body>
</soapenv:Envelope>
```

The getResourceSnapshot operation

Retrieves a snapshot of a resource generated as a result of a resource transfer request. Note that this is a blocking call and will hold on to the SOAP connection until the export file is created on the server.

Input fields

The following table lists the input fields for the `getResourceSnapshot` operation.

Table 64. Fields for `getResourceSnapshot`.

Field	Type/Valid Values	Description
TransferIdentifier	TransferIdentifier	Unique identifier of the resource transfer.
DeliveryType	DeliveryType	Defines an enumeration that identifies accepted methods of delivery to retrieve binary content.

SOAP request example

Client invocation of the `getResourceSnapshot` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
  </soapenv:Header>
```



```

    </wsse:UsernameToken>
  </wsse:Security>
  <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
    xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
</soapenv:Header>
<soapenv:Body>
  <getResourceSnapshot xmlns="http://xml.spss.com/repository/remote">
    <TransferIdentifier xmlns="http://xml.spss.com/repository">5d947f5e7f</TransferIdentifier>
    <ns2:DeliveryType xmlns:ns2="http://xml.spss.com/repository">MIME</ns2:DeliveryType>
  </getResourceSnapshot>
</soapenv:Body>
</soapenv:Envelope>

```

SOAP response example

The server responds to a `getResourceSnapshot` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <getResourceSnapshotResponse xmlns="http://xml.spss.com/repository/remote"/>
  </soapenv:Body>
</soapenv:Envelope>

```

The `getResourceWithLock` operation

Checks if a resource is locked, and if not, creates a lock for the resource, returning the resource to the caller. The lock remains until a call is made to unlock it. An exception is thrown if the resource is already locked.

Input fields

The following table lists the input fields for the `getResourceWithLock` operation.

Table 65. Fields for `getResourceWithLock`.

Field	Type/Valid Values	Description
IdentificationSpecifier	IdentificationSpecifier	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

Return information

The following table identifies the information returned by the `getResourceWithLock` operation.

Table 66. Return Value.

Type	Description
ResourceSpecifier	Wrapper for a resource object. Used to define service interface parameter to preserve polymorphism.

SOAP request example

Client invocation of the `getResourceWithLock` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```

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

```

```

<wsse:Security soapenv:mustUnderstand="0"
  xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
  <wsse:UsernameToken>
    <wsse:Username xsi:type="xsd:string">Native/validUser</wsse:Username>
    <wsse:Password xsi:type="xsd:string">password</wsse:Password>
  </wsse:UsernameToken>
</wsse:Security>
<ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
  xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
</soapenv:Header>
<soapenv:Body>
  <getResourceWithLock xmlns="http://xml.spss.com/repository/remote">
    <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
      <identifier value="0a0a4a3548f7ccd200000115fc78fd788062" xsi:type="ResourceID"/>
    </IdentificationSpecifier>
  </getResourceWithLock>
</soapenv:Body>
</soapenv:Envelope>

```

SOAP response example

The server responds to a `getResourceWithLock` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:actor="http://schemas.xmlsoap.org/soap/actor/next"
      soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username>Native/validUser</wsse:Username>
        <wsse:Password>password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
  </soapenv:Header>
  <soapenv:Body>
    <getResourceWithLockResponse xmlns="http://xml.spss.com/repository/remote">
      <ResourceSpecifier xmlns="http://xml.spss.com/repository">
        <Resource isLockOwner="true" canWrite="true" canDelete="false" canModifyPermissions="false"
          xsi:type="File">
          <ResourceID value="0a0a4a3548f7ccd200000115fc78fd788062"/>
          <Version marker="0:2007-11-01 14:50:51.237"/>
          <CreationDate value="2007-11-01T14:50:51.237-05:00"/>
          <ModificationDate value="2007-11-01T14:50:51.237-05:00"/>
          <Title value="factor_c_09.spv"/>
          <ResourcePath value="/SPV/factor_c_09.spv" hierarchyType="folder"/>
          <CreatedBy value="admin"/>
          <ObjectCreationDate value="2007-11-01T14:50:51.160-05:00"/>
          <ObjectLastModifiedBy value="admin"/>
          <ObjectLastModifiedDate value="2007-11-01T14:50:51.657-05:00"/>
          <AccessControlList poe="CMOR">
            <AccessControlEntry Permission="READ">
              <Principal ID="//gNative//$$security/everyoneGroup" DisplayName="-- everyone --"
                Name="$$security/everyoneGroup" IsGroup="true"/>
            </AccessControlEntry>
            <AccessControlEntry Permission="WRITE">
              <Principal ID="//gNative//$$security/everyoneGroup" DisplayName="-- everyone --"
                Name="$$security/everyoneGroup" IsGroup="true"/>
            </AccessControlEntry>
            <AccessControlEntry Permission="READ">
              <Principal ID="//uNative//admin" DisplayName="admin" Name="admin" IsGroup="false"/>
            </AccessControlEntry>
            <owner ID="//uNative//admin" DisplayName="admin" Name="admin" IsGroup="false"/>
          </AccessControlList>
          <Author value="admin"/>
          <MimeType value="application/x-vnd.spss-spss-viewer"/>
          <ContentSize value="260444"/>
        </Resource>
      </ResourceSpecifier>
    </getResourceWithLockResponse>
  </soapenv:Body>
</soapenv:Envelope>

```

The `getTransferResults` operation

Retrieves the transfer conflict information for a resource transfer.

Input fields

The following table lists the input fields for the `getTransferResults` operation.

Table 67. Fields for `getTransferResults`.

Field	Type/Valid Values	Description
TransferIdentifier	TransferIdentifier	Unique identifier of the resource transfer.
TransferResultSelector	TransferResultSelector	Defines a selection criterion for the results generated during transferring activities.

Return information

The following table identifies the information returned by the `getTransferResults` operation.

Table 68. Return Value.

Type	Description
pageResult	Results of a search request to the search2.5 mechanism. This may either be an initial search based on any criterion, or a subsequent search for another page.

Java example

To retrieve the conflict resolution table for a transfer:

1. Create a `TransferResultSelector` object.
2. Create a `TransferConflictCriterion` object.
3. Create a `Filter` object. Define the filter characteristics as needed. An empty filter yields the first page of results.
4. Assign the filter to the criterion using the `setFilter` method.
5. Define the page size, sort column, and sort order for the results using the `setPageSize`, `setSortColumn`, and `setSortOrder` methods for the criterion.
6. Assign the criterion to the selector using the `setPageSelector` method.
7. Provide the `getTransferResults` operation with the transfer identifier and the selector.

The following sample returns the first 10 conflicts for the transfer with the identifier of `transferId`.

```
TransferResultSelector selector = new TransferResultSelector();
TransferConflictCriterion criterion = new TransferConflictCriterion();
Filter filter = new Filter();
criterion.setFilter(filter);
criterion.setPageSize(10);
criterion.setSortColumn("$$repository/conflict_res_source_path");
criterion.setSortOrder(PageSelectorSortOrderType.DESENDING);
selector.setPageSelector(criterion);
PageResult pageResult = stub.getTransferResults(transferId, selector);
```

To return subsequent result pages:

1. Return the navigator for the page result using the `getNavigator` method.
2. Return a `NavigatorItem` object from the navigator using the `getNext` method.
3. Create a `TransferConflictCriterion` object.
4. Create a `PageRequest` object.
5. Define the client key, an internal identifier used to synchronize requests for specific pages, using the `setClientKey` method.

6. Specify the starting row for the results to return by supplying the `setStartingRow` method with a selector obtained from the navigator item.
7. Assign the page request to the criterion using the `setPageRequest` method.
8. Assign the criterion to the results selector using the `setPageSelector` method.
9. Provide the `getTransferResults` operation with the transfer identifier and the selector.

```
NavigatorItem next = pageResult.getNavigator().getNext();
TransferConflictCriterion criterion = new TransferConflictCriterion();
PageRequest pageRequest = new PageRequest();
pageRequest.setClientKey(clientKey);
pageRequest.setStartingRow(next.getSelector());
criterion.setPageRequest(pageRequest);
selector.setPageSelector(criterion);
pageResult = contentRepository.getTransferResults(transferId, selector);
```

To resolve conflicts, use the “The `applyTransferPolicy` operation” on page 17 operation.

The `getTransferStatus` operation

Retrieves status information for a resource transfer.

Input fields

The following table lists the input fields for the `getTransferStatus` operation.

Table 69. Fields for `getTransferStatus`.

Field	Type/Valid Values	Description
TransferIdentifier	TransferIdentifier	Unique identifier of the resource transfer.

Return information

The following table identifies the information returned by the `getTransferStatus` operation.

Table 70. Return Value.

Type	Description
TransferStatus	Provides status and progress information for the resource transfer.

SOAP request example

Client invocation of the `getTransferStatus` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <getTransferStatus xmlns="http://xml.spss.com/repository/remote">
      <TransferIdentifier xmlns="http://xml.spss.com/repository">5d947f5e7f</TransferIdentifier>
    </getTransferStatus>
  </soapenv:Body>
</soapenv:Envelope>
```

SOAP response example

The server responds to a `getTransferStatus` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <getTransferStatusResponse xmlns="http://xml.spss.com/repository/remote">
      <TransferStatus transferState="running" xmlns="http://xml.spss.com/repository">
        <currentIdentifier value="/pes_server" hierarchyType="server" xsi:type="ResourcePath"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
      </TransferStatus>
    </getTransferStatusResponse>
  </soapenv:Body>
</soapenv:Envelope>
```

The `getVersion` operation

Returns the version number of the service.

Return information

The following table identifies the information returned by the `getVersion` operation.

Table 71. Return Value.

Type	Description
string	The version of the web service.

Java example

To access the version number of the service, call the `getVersion` operation from the service stub.

```
System.out.println("Service Version = " + stub.getVersion());
```

SOAP request example

Client invocation of the `getVersion` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <getVersion xmlns="http://xml.spss.com/repository/remote"/>
  </soapenv:Body>
</soapenv:Envelope>
```

SOAP response example

The server responds to a `getVersion` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <getVersionResponse xmlns="http://xml.spss.com/repository/remote">
      <version>4.20.000</version>
    </getVersionResponse>
  </soapenv:Body>
</soapenv:Envelope>
```

The `getVersionLabels` operation

Returns a list of version labels for a specified resource.

Input fields

The following table lists the input fields for the `getVersionLabels` operation.

Table 72. Fields for `getVersionLabels`.

Field	Type/Valid Values	Description
IdentificationSpecifier	IdentificationSpecifier	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

Return information

The following table identifies the information returned by the `getVersionLabels` operation.

Table 73. Return Value.

Type	Description
string[]	Version labels for the resource.

Java example

The following function accepts an identifier for a resource. The `getVersionLabels` operation returns an array of strings containing the labels for this resource.

```
public String[] getVersionLabels(IdentificationSpecifier identificationSpecifier)
    throws IOException, ServiceException {
    ContentRepository repository = getContentRepository();
    String[] result = repository.getVersionLabels(identificationSpecifier);
    return result;
}
```

SOAP request example

Client invocation of the `getVersionLabels` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <getVersionLabels xmlns="http://xml.spss.com/repository/remote">
      <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4aac00072ffb000001094fa9f57ec98e" xsi:type="ResourceID"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
      </IdentificationSpecifier>
    </getVersionLabels>
  </soapenv:Body>
</soapenv:Envelope>
```

SOAP response example

The server responds to a `getVersionLabels` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <getVersionLabelsResponse xmlns="http://xml.spss.com/repository/remote"/>
  </soapenv:Body>
</soapenv:Envelope>
```

The lockResource operation

Locks a resource, preventing another user from making changes. The resource remains locked until a call is made to unlock the resource. An exception is thrown if an attempt is made to lock a resource that is already locked.

Input fields

The following table lists the input fields for the `lockResource` operation.

Table 74. Fields for `lockResource`.

Field	Type/Valid Values	Description
TargetIdentificationSpecifier	IdentificationSpecifier	Wrapper for identification information (Id, path, version label, version marker). Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

Java example

The general steps involved in locking a resource include:

1. Create an `IdentificationSpecifier` object.
2. Create an `Identifier` object corresponding to the type of information used to identify the object. For example, when using a repository ID, create a `ResourceID` object. When using the path to the resource in the repository, create a `ResourcePath` object.
3. Define the identifier information using the `setValue` method.
4. Assign the identifier to the specifier using the `setIdentifier` method.
5. Create a `Version` object.
6. Specify the version information using the `setLabel` and `setMarker` methods as needed.
7. Assign the version information to the specifier using the `setVersion` method.
8. Supply the `lockResource` operation with the specifier object.

The following sample locks the *Production* version of a specified resource.

```
IdentificationSpecifier identification = new IdentificationSpecifier();

ResourceID resID = new ResourceID("0a0a4a352def327800000115cdabfc0a805a");
identification.setIdentifier(resID);

Version version = new Version();
version.setLabel("Production");
identification.setVersion(version);

stub.lockResource(identification);
```

SOAP request example

Client invocation of the lockResource operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <lockResource xmlns="http://xml.spss.com/repository/remote">
      <TargetIdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4a352def327800000115cdabfc0a805a" xsi:type="ResourceID"/>
        <Version>
          <label>Production</label>
        </Version>
      </TargetIdentificationSpecifier>
    </lockResource>
  </soapenv:Body>
</soapenv:Envelope>
```

SOAP response example

The server responds to a lockResource operation call by sending a SOAP response message containing the results. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <lockResourceResponse xmlns="http://xml.spss.com/repository/remote"/>
  </soapenv:Body>
</soapenv:Envelope>
```

The lockResources operation

Locks multiple resources, preventing another user from making changes. A resource remains locked until a call is made to unlock the resource. An exception is thrown if an attempt is made to lock a resource that is already locked.

Input fields

The following table lists the input fields for the lockResources operation.

Table 75. Fields for lockResources.

Field	Type/Valid Values	Description
TargetIdentificationSpecifier	IdentificationSpecifier[]	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

The moveResource operation

Moves a resource to a specified parent. The identifier for the parent folder must be specified. The resource version can be specified in the resource object. If there is an attempt to move the resource to a topic or a file parent, an exception is thrown. The object being moved maintains the same object identifier, as well as all other metadata.

Input fields

The following table lists the input fields for the moveResource operation.

Table 76. Fields for moveResource.

Field	Type/Valid Values	Description
TargetParent	TargetParent	Specifies a parent target for a move or copy operation.
Source	Source	Specifies the source for a move or copy operation.

Java example

The following function accepts an array of resources to be moved and a target folder for the move. The getResourceID method returns the identifier for the target folder, which is assigned to a TargetParent object using setIdentifier. The for loop iterates through the resource array, creating a Source object for each resource. The moveResource operation moves the resource corresponding to this object to the parent defined by the TargetParent object.

```
public void moveResources(AdaptableResource[] resources, AdaptableFolder targetFolder)
    throws IOException, ServiceException {
    ContentRepository repository = getContentRepository();
    TargetParent tgtParent = new TargetParent();
    tgtParent.setIdentifier(targetFolder.getResourceID());
    for (int i = 0; i < resources.length; i++) {
        AdaptableResource resource = resources[i];
        Source source = new Source();
        source.setIdentifier(resource.getResourceID());
        repository.moveResource(tgtParent, source);
        targetFolder.setHasChildren(true);
    }
}
```

Use setHasChildren to set the indicator for the presence of children for the target folder to *true* after moving the resources to the folder.

SOAP request example

Client invocation of the moveResource operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">Native/validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <moveResource xmlns="http://xml.spss.com/repository/remote">
      <TargetParent xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4aac00072ffb00000106561fccf88047" xsi:type="ResourceID">
```

```

        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
    </TargetParent>
    <Source xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4aac00072ffb00000106a7a10b13803c" xsi:type="ResourceID"
            xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
        </Source>
    </moveResource>
</soapenv:Body>
</soapenv:Envelope>

```

SOAP response example

The server responds to a moveResource operation call by sending a SOAP response message containing the results. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
    xmlns:xsd="http://www.w3.org/2001/XMLSchema"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <soapenv:Body>
        <moveResourceResponse xmlns="http://xml.spss.com/repository/remote"/>
    </soapenv:Body>
</soapenv:Envelope>

```

The promoteResource operation

Transfers resources between two different IBM SPSS Collaboration and Deployment Services Repository instances in accordance with a set of predefined rules. See the topic “Promotion” on page 13 for more information.

Supply this operation with a specifier object that identifies the following:

- The resource to promote
- The promotion policy

The promotion policy defines the items included with the specified resource in the promotion. Create a promotion policy by using the createResource operation. See the topic “Promotion Policies” on page 14 for more information.

Input fields

The following table lists the input fields for the promoteResource operation.

Table 77. Fields for promoteResource.

Field	Type/Valid Values	Description
PromotionSpecifier	PromotionSpecifier	

Return information

The following table identifies the information returned by the promoteResource operation.

Table 78. Return Value.

Type	Description
TransferIdentifier	Unique identifier of the resource transfer.

Java example

The general process for promoting resources involves the following steps:

1. Initiate the transfer using the promoteResource operation.
2. Monitor the status of the transfer using the “The getTransferStatus operation” on page 80 operation.

3. If you are promoting the source version to a file for subsequent transfer at a later time, get the promotion results as an attachment using the “The getResourceSnapshot operation” on page 76 operation.
4. Release system resources used for the promotion using the “The disposeTransfer operation” on page 34 operation.

To promote a version:

1. Create a PromotionSpecifier object to define the promotion policy and the resources being promoted.
2. Create an Identifier object of the ResourceURI type to identify the promotion policy to use. Supply the setValue method of the promotion policy identifier object with the URI for the promotion policy.
3. Use the setPromotionPolicyIdentifier method to assign the policy identifier to the specifier object.
4. Create a ResourceURI object for the source being promoted. Supply the setValue method of the URI object with the URI for the source.
5. Create an IdentifierList object. Supply the addIdentifier method of the list object with the URI object for the source.
6. Use the setIdentifierList method to assign the source list to the specifier object.
7. Provide the promoteResource operation with the promotion specifier. The returned TransferIdentifier value-object can be used to monitor the current status of the transfer asynchronously.

The following code sample promotes the latest version of a file.

```
PromotionSpecifier promotionSpecifier = new PromotionSpecifier();
Identifier promotionPolicyIdentifier = new ResourceURI();
promotionPolicyIdentifier.setValue("spssc:///id=0923cb338743d301000001319601c2498574");
promotionSpecifier.setPromotionPolicyIdentifier(promotionPolicyIdentifier);

ResourceURI resourceURI = new ResourceURI();
resourceURI.setValue("spssc:///id=0923cb33df9e441400000130520bd6a5b952#1.LATEST");

IdentifierList identifierList = new IdentifierList();
identifierList.addIdentifier(resourceURI);
promotionSpecifier.setIdentifierList(identifierList);

TransferIdentifier transferIdentifier = stub.promoteResource(promotionSpecifier);
```

The following sample code monitors the promotion status, releasing system resources when the process completes.

```
TransferStatus transferStatus = null;
TransferState transferState = null;
try {
    transferStatus = stub.getTransferStatus(transferIdentifier);
    transferState = transferStatus.getTransferState();
    while (!isTransferEnded(transferState)) {
        Identifier identifier = transferStatus.getCurrentIdentifier();
        if (identifier != null) {
            System.out.println("" + transferStatus.getCurrentProcess() +
                " " + identifier.getValue());
        } else {
            System.out.println("Preparing to promote resource...");
        }
        Thread.sleep(1000);
        transferStatus = stub.getTransferStatus(transferIdentifier);
        transferState = transferStatus.getTransferState();
    }
} catch (RepositoryException repositoryException) {
    // handle transfer failure
}

if (!transferState.equals(TransferState.COMPLETED)) {
    throw new IllegalStateException("Something went terribly wrong...");
}

stub.disposeTransfer(transferIdentifier);
```

The isTransferEnded function used to monitor the process simply returns the state of the transfer.

```
private static boolean isTransferEnded(TransferState inTransferState) {
    return inTransferState.equals(TransferState.CANCELED) ||
        inTransferState.equals(TransferState.COMPLETED) ||
        inTransferState.equals(TransferState.FAILED);
}
```

SOAP request example

Client invocation of the promoteResource operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">Native/validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <promoteResource xmlns="http://xml.spss.com/repository/remote">
      <PromotionSpecifier xmlns="http://xml.spss.com/repository">
        <promotionPolicyIdentifier value="spsscr:///id=0923cb338743d301000001319601c2498574" xsi:type="ResourceURI"/>
        <IdentifierList>
          <identifier value="spsscr:///id=0923cb33df9e441400000130520bd6a5b952#1.LATEST" xsi:type="ResourceURI"/>
        </IdentifierList>
      </PromotionSpecifier>
    </promoteResource>
  </soapenv:Body>
</soapenv:Envelope>
```

SOAP response example

The server responds to a promoteResource operation call by sending a SOAP response message containing the results. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <promoteResourceResponse xmlns="http://xml.spss.com/repository/remote">
      <TransferIdentifier engineVersion="2.0" serviceEndpoint="http://cdsserver:8080/cr-ws/services/ContentRepository"
        xmlns="http://xml.spss.com/repository">0923cb338743d301000001319601c2498583
      </TransferIdentifier>
    </promoteResourceResponse>
  </soapenv:Body>
</soapenv:Envelope>
```

The query operation

This operation is for internal use only and has been deprecated. Consumers of the web service wanting to search for resources should use the Search service instead of this operation.

The query operation provides a way to search for and retrieve resources from the repository. Much like getChildern, this operation allows the client to specify which metadata should be returned in the resources. Any metadata not requested that is not part of a collection will have a null value, so it should not attempt to be retrieved without checking for null or monitoring for a NullPointerException. The query specification includes the following information:

- **Scope.** The type of objects to be searched. Specify either resource, file, folder, or topic. The search can be restricted to particular file types by specifying a MIME type.
- **Terms.** An ordered list of conditions and predicates used to build the query. The server processes the terms in the order specified.
- **Selected metadata.** Metadata included in the resources that are returned as a result of running the query. To get all metadata, specify null.

By default, the query operation returns the latest version of a resource. To return another version, specify a version in a conditional term. Set either the marker or the label to the version. Alternatively, query can also be used to return all versions of a resource. This can be accomplished by specifying a version in a conditional term and leaving both the marker and label null.

By specifying a version in the selected metadata, the caller will receive version information with each resource that is returned. By also specifying a specific marker in the conditional term, the caller will obtain an array of all labels in the version object in the returned resource. If the caller leaves the marker and label null in the conditional term, a resource for each version (each marker) will be returned. By examining each of these resources, the caller can derive a list of all labels for a given object (all versions of the object).

The information returned by this operation corresponds to resource versions that are visible for the credentials used in the web service call. Visibility depends on both label security and expiration settings.

- Expired versions are visible only to the resource owner and administrators.
- If the credentials are associated with the *Show All Versions* action or correspond to the owner of the resource, all versions of the file are visible. However, all of the labels may not be visible. Users with these credentials can also see and use the *LATEST* label on the resource.
- If the credentials are not associated with the *Show All Versions* action or do not correspond to the owner of the resource, only labeled resource versions are visible. Users with these credentials can see the *LATEST* version only if they have *Show Latest* action.

Input fields

The following table lists the input fields for the query operation.

Table 79. Fields for query.

Field	Type/Valid Values	Description
QuerySpecification	QuerySpecification	Expresses search criteria for querying the repository.

Return information

The following table identifies the information returned by the query operation.

Table 80. Return Value.

Type	Description
ResourceSpecifier[]	Wrapper for a resource object. Used to define service interface parameter to preserve polymorphism.

Java example

The following example queries the repository for file resources in the */Models/Trees* that are authored by Steve or Lance. The resources returned by the query contain only the resource path information.

```
ResourcePath treemodelsPath = new ResourcePath();
treemodelsPath.setValue("/Models/Trees");
ConditionalTerm pathIsTreeModel = new ConditionalTerm();
pathIsTreeModel.setMetadata(treemodelsPath);
pathIsTreeModel.setCondition(QueryCondition.EQUAL);
Author steve = new Author();
steve.setValue("Steve");
ConditionalTerm authorIsSteve = new ConditionalTerm();
authorIsSteve.setMetadata(steve);
authorIsSteve.setCondition(QueryCondition.EQUAL);
Author lance = new Author();
lance.setValue("Lance");
ConditionalTerm authorIsLance = new ConditionalTerm();
```

```

authorIsLance.setMetadata(lance);
authorIsLance.setCondition(QueryCondition.EQUAL);
NestedTerm authorIsLanceOrSteve = new NestedTerm();
authorIsLanceOrSteve.addTerm(authorIsSteve);
authorIsLanceOrSteve.addTerm(new OrPredicateTerm());
authorIsLanceOrSteve.addTerm(authorIsLance);
QuerySpecification q = new QuerySpecification();
q.setScope("file");
ResourcePath p = new ResourcePath();
SelectedMetadata selected = new SelectedMetadata();
selected.addMetadataBase(p);
q.setSelectedMetadata(selected);
q.addTerm(pathIsTreeModel);
q.addTerm(new AndPredicateTerm());
q.addTerm(authorIsLanceOrSteve);
Resource[] resources = c_repository.query(q);

```

The queryReturnSpecific operation

The queryReturnSpecific operation provides a way to search for and retrieve resources from the repository. This operation is for internal use only and has been deprecated. Consumers of the web service wanting to search for resources should use the Search service instead of this operation.

The difference between this operation and the query operation is the structure of the wrapper for the returned resources. The query operation returns an array of ResourceSpecifier objects detailing the resources. Different resource types are handled through the use of XMLSchema instance types. In contrast, the queryReturnSpecific operation returns an array of SpecificResourceSpecifier objects. Different resource types are handled through the use of different objects for the types. For example, instead of returning a Resource object of the File type, queryReturnSpecific returns a File object. Clients that cannot properly handle instance types should use queryReturnSpecific instead of query.

The information returned by this operation corresponds to resource versions that are visible for the credentials used in the web service call. Visibility depends on both label security and expiration settings.

- Expired versions are visible only to the resource owner and administrators.
- If the credentials are associated with the *Show All Versions* action or correspond to the owner of the resource, all versions of the file are visible. However, all of the labels may not be visible. Users with these credentials can also see and use the *LATEST* label on the resource.
- If the credentials are not associated with the *Show All Versions* action or do not correspond to the owner of the resource, only labeled resource versions are visible. Users with these credentials can see the *LATEST* version only if they have *Show Latest* action.

Input fields

The following table lists the input fields for the queryReturnSpecific operation.

Table 81. Fields for queryReturnSpecific.

Field	Type/Valid Values	Description
QuerySpecification	QuerySpecification	Expresses search criteria for querying the repository.

Return information

The following table identifies the information returned by the queryReturnSpecific operation.

Table 82. Return Value.

Type	Description
SpecificResourceSpecifier[]	Wrapper for a resource object. Used to define service interface parameter to preserve polymorphism.

The removeLabel operation

Removes a designated label from a specified version of a resource.

Input fields

The following table lists the input fields for the removeLabel operation.

Table 83. Fields for removeLabel.

Field	Type/Valid Values	Description
TargetIdentificationSpecifier	IdentificationSpecifier	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.
label	string	The label to be removed.

Return information

The following table identifies the information returned by the removeLabel operation.

Table 84. Return Value.

Type	Description
IdentificationSpecifier	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

Java example

The following function accepts a file resource and an array of labels to be removed from the resource. The getResourceID method returns the identifier for the file, which is assigned to an IdentificationSpecifier object using setIdentifier. Similarly, the getVersion method returns a Version object denoting the file version. The setVersion method uses this information to define the version for the IdentificationSpecifier object. Each label is removed by looping over the label array, using removeLabel for each entry in the array.

```
public void removeVersionLabel(AdaptableFile fileVersion, String[] labels)
    throws ResourceNotFoundException, RepositoryException,
        RemoteException, IOException, ServiceException {
    IdentificationSpecifier specifier = new IdentificationSpecifier();
    specifier.setIdentifier(fileVersion.getResourceID());
    Version version = fileVersion.getResource().getVersion();
    specifier.setVersion(version);
    LinkedHashSet set = new LinkedHashSet(Arrays.asList(version.getLabel()));
    for (int i=0; i < labels.length; ++i) {
        getContentRepository().removeLabel(specifier, labels[i]);
        set.remove(labels[i]);
    }
    String[] newLabels = (String[]) set.toArray(new String[set.size()]);
    fileVersion.getVersion().setLabel(newLabels);
    fireUpdateEvent(fileVersion);
}
```

SOAP request example

Client invocation of the removeLabel operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <removeLabel xmlns="http://xml.spss.com/repository/remote">
      <TargetIdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4aac00072ffb000001094fa9f57ecd59" xsi:type="ResourceID"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
        <Version marker="0:2006-02-21 17:19:50.796"/>
      </TargetIdentificationSpecifier>
      <label>Test</label>
    </removeLabel>
  </soapenv:Body>
</soapenv:Envelope>

```

SOAP response example

The server responds to a `removeLabel` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <removeLabelResponse xmlns="http://xml.spss.com/repository/remote">
      <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4aac00072ffb000001094fa9f57ecd59" xsi:type="ResourceID"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
        <Version marker="0:2006-02-21 17:19:50.796"/>
      </IdentificationSpecifier>
    </removeLabelResponse>
  </soapenv:Body>
</soapenv:Envelope>

```

The runCqlQuery operation

This operation is for internal use only.

Input fields

The following table lists the input fields for the `runCqlQuery` operation.

Table 85. Fields for runCqlQuery.

Field	Type/Valid Values	Description
QueryCqlSpecification	QueryCqlSpecification	Expresses search criteria for querying the repository.

Return information

The following table identifies the information returned by the `runCqlQuery` operation.

Table 86. Return Value.

Type	Description
QueryCqlResult	Result of the CQL query.

The setBulkResourceMetadata operation

Assigns a set of metadata values to a list of specified resources. All specified files or file versions will end up with the same specified metadata.

Input fields

The following table lists the input fields for the setBulkResourceMetadata operation.

Table 87. Fields for setBulkResourceMetadata.

Field	Type/Valid Values	Description
IdentificationSpecifier	IdentificationSpecifier[]	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.
ResourceSpecifier	ResourceSpecifier	Wrapper for a resource object. Used to define service interface parameter to preserve polymorphism.
SelectedMetadata	SelectedMetadata	Provides a way to select specific metadata for retrieval or update

Return information

The following table identifies the information returned by the setBulkResourceMetadata operation.

Table 88. Return Value.

Type	Description
IdentificationSpecifier[]	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

Java example

To define resource metadata in bulk:

1. Create an array of IdentificationSpecifier objects for the resources. Set the identification and version information for each resource.
2. Create a ResourceSpecifier object to contain the metadata values for the resources and set the values.
3. Create a SelectedMetadata object to identify the metadata field corresponding to the values defined for the resources.
4. Supply the setBulkResourceMetadata operation with the identification, resource, and metadata objects.

The following code sets the expiration date for two files.

```
IdentificationSpecifier[] is = new IdentificationSpecifier[2];
ResourceID id = new ResourceID();
id.setValue("0a0a4a35bad1b0750000010f3a50fe4980e6");
is[0].setIdentifier(id);
Version vsion = new Version();
vsion.setMarker("0:2006-11-30 14:19:20.769");
is[0].setVersion(vsion);
id.setValue("0a0a4a353da969fa0000010ef0fcc01f8649");
is[1].setIdentifier(id);
vsion.setMarker("0:2006-11-17 09:59:42.666");
is[1].setVersion(vsion);
```

```

ResourceSpecifier rs = new ResourceSpecifier();
File file = new File();
ExpirationDate exp = new ExpirationDate();
Calendar date = new Calendar();
date.set(2007, 01, 31, 0, 0, 0);
exp.setValue(date);
file.setExpirationDate(exp);
rs.setResource(file);

SelectedMetadata sm = new SelectedMetadata();
sm.addMetadataBase(new ExpirationDate());

IdentificationSpecifier[] idSpec = stub.setBulkResourceMetadata(is, rs, sm);

```

SOAP request example

Client invocation of the `setBulkResourceMetadata` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <setBulkResourceMetadata xmlns="http://xml.spss.com/repository/remote">
      <ns2:IdentificationSpecifier xmlns:ns2="http://xml.spss.com/repository">
        <ns2:identifier value="0a0a4a35bad1b0750000010f3a50fe4980e6" xsi:type="ResourceID"/>
        <ns2:Version marker="0:2006-11-30 14:19:20.769"/>
      </ns2:IdentificationSpecifier>
      <ns3:IdentificationSpecifier xmlns:ns3="http://xml.spss.com/repository">
        <ns3:identifier value="0a0a4a353da969fa0000010ef0fcc01f8649" xsi:type="ResourceID"/>
        <ns3:Version marker="0:2006-11-17 09:59:42.666"> </ns3:Version>
      </ns3:IdentificationSpecifier>
      <ns4:ResourceSpecifier xmlns:ns4="http://xml.spss.com/repository">
        <ns4:Resource xsi:type="File">
          <ns4:ExpirationDate value="2007-01-31T00:00:00.000-06:00"/>
        </ns4:Resource>
      </ns4:ResourceSpecifier>
      <SelectedMetadata xmlns="http://xml.spss.com/repository">
        <ExpirationDate/>
      </SelectedMetadata>
    </setBulkResourceMetadata>
  </soapenv:Body>
</soapenv:Envelope>

```

SOAP response example

The server responds to a `setBulkResourceMetadata` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <setBulkResourceMetadataResponse xmlns="http://xml.spss.com/repository/remote">
      <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4a35bad1b0750000010f3a50fe4980e6" xsi:type="ResourceID"/>
      </IdentificationSpecifier>
      <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4a353da969fa0000010ef0fcc01f8649" xsi:type="ResourceID"/>
      </IdentificationSpecifier>
    </setBulkResourceMetadataResponse>
  </soapenv:Body>
</soapenv:Envelope>

```

The setBulkResourceMetadataSpecific operation

Assigns a set of metadata values to a list of specified resources. All specified files or file versions will end up with the same specified metadata.

The difference between this operation and the setBulkResourceMetadata operation is the structure of the wrapper for the resource input. The setBulkResourceMetadata operation accepts an array of ResourceSpecifier objects defining the resources. Different resource types are handled through the use of XMLSchema instance types. In contrast, the setBulkResourceMetadataSpecific operation accepts an array of SpecificResourceSpecifier objects. Different resource types are handled through the use of different objects for the types. For example, instead of handling a Resource object of the File type, setBulkResourceMetadataSpecific processes a File object. Clients that cannot properly handle instance types should use setBulkResourceMetadataSpecific instead of setBulkResourceMetadata.

Input fields

The following table lists the input fields for the setBulkResourceMetadataSpecific operation.

Table 89. Fields for setBulkResourceMetadataSpecific.

Field	Type/Valid Values	Description
TargetIdentificationSpecifier	IdentificationSpecifier[]	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.
SpecificResourceSpecifier	SpecificResourceSpecifier	Wrapper for a resource object. Used to define service interface parameter to preserve polymorphism.
SelectedMetadata	SelectedMetadata	Provides a way to select specific metadata for retrieval or update

Return information

The following table identifies the information returned by the setBulkResourceMetadataSpecific operation.

Table 90. Return Value.

Type	Description
IdentificationSpecifier[]	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

Java example

To define resource metadata in bulk:

1. Create an array of IdentificationSpecifier objects for the resources. Set the identification and version information for each resource.
2. Create a SpecificResourceSpecifier object to contain the metadata values for the resources and set the values.
3. Create a SelectedMetadata object to identify the metadata field corresponding to the values defined for the resources.

- Supply the `setBulkResourceMetadataSpecific` operation with the identification, resource, and metadata objects.

The following code sets the expiration date for two files.

```

IdentificationSpecifier[] is = new IdentificationSpecifier[2];
ResourceID id = new ResourceID();
id.setValue("0a0a4a35bad1b075000010f3a50fe4980e6");
is[0].setIdentifier(id);
Version vsion = new Version();
vsion.setMarker("0:2006-11-30 14:19:20.769");
is[0].setVersion(vsion);
id.setValue("0a0a4a353da969fa000010ef0fcc01f8649");
is[1].setIdentifier(id);
vsion.setMarker("0:2006-11-17 09:59:42.666");
is[1].setVersion(vsion);

SpecificResourceSpecifier rs = new SpecificResourceSpecifier();
File file = new File();
ExpirationDate exp = new ExpirationDate();
Calendar date = new Calendar();
date.set(2007, 01, 31, 0, 0, 0);
exp.setValue(date);
file.setExpirationDate(exp);
rs.setFile(file);

SelectedMetadata sm = new SelectedMetadata();
sm.addMetadataBase(new ExpirationDate());

IdentificationSpecifier[] idSpec = stub.setBulkResourceMetadataSpecific(is, rs, sm);

```

SOAP request example

Client invocation of the `setBulkResourceMetadataSpecific` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <setBulkResourceMetadataSpecific xmlns="http://xml.spss.com/repository/remote">
      <ns2:IdentificationSpecifier xmlns:ns2="http://xml.spss.com/repository">
        <ns2:identifier value="0a0a4a35bad1b075000010f3a50fe4980e6" xsi:type="ResourceID"/>
        <ns2:Version marker="0:2006-11-30 14:19:20.769"/>
      </ns2:IdentificationSpecifier>
      <ns3:IdentificationSpecifier xmlns:ns3="http://xml.spss.com/repository">
        <ns3:identifier value="0a0a4a353da969fa000010ef0fcc01f8649" xsi:type="ResourceID"/>
        <ns3:Version marker="0:2006-11-17 09:59:42.666"> </ns3:Version>
      </ns3:IdentificationSpecifier>
      <ns4:SpecificResourceSpecifier xmlns:ns4="http://xml.spss.com/repository">
        <ns4:File>
          <ns4:ExpirationDate value="2007-01-31T00:00:00.000-06:00"/>
        </ns4:File>
      </ns4:SpecificResourceSpecifier>
      <SelectedMetadata xmlns="http://xml.spss.com/repository">
        <ExpirationDate/>
      </SelectedMetadata>
    </setBulkResourceMetadataSpecific>
  </soapenv:Body>
</soapenv:Envelope>

```

SOAP response example

The server responds to a `setBulkResourceMetadataSpecific` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <setBulkResourceMetadataSpecificResponse xmlns="http://xml.spss.com/repository/remote">
      <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4a35bad1b0750000010f3a50fe4980e6" xsi:type="ResourceID"/>
      </IdentificationSpecifier>
      <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4a353da969fa0000010ef0fcc01f8649" xsi:type="ResourceID"/>
      </IdentificationSpecifier>
    </setBulkResourceMetadataSpecificResponse>
  </soapenv:Body>
</soapenv:Envelope>

```

The transferResource operation

Transfers resources between different content repositories.

Input fields

The following table lists the input fields for the transferResource operation.

Table 91. Fields for transferResource.

Field	Type/Valid Values	Description
TransferSpecification	TransferSpecification	Defines a specification for transferring resources between two different instances of the content repository

Return information

The following table identifies the information returned by the transferResource operation.

Table 92. Return Value.

Type	Description
TransferIdentifier	Unique identifier of the resource transfer.

Java example

The transferResource operation provides the ability to both export and import resources. The general process involves the following steps:

1. Initiate the transfer using the transferResource operation.
2. Monitor the status of the transfer using the “The getTransferStatus operation” on page 80 operation.
3. When exporting, get the export results as an attachment using the “The getResourceSnapshot operation” on page 76 operation.
4. Release system resources used for the transfer using the “The disposeTransfer operation” on page 34 operation.

The service exports resources in the form of MIME or DIME attachments. To export resources from the repository to an export file:

1. Create a TransferSpecification object.
2. For handling of transfer conflicts, set the transfer engine version to 2.0 using the setEngineVersion method.
3. Create a TransferSpecifier object for the source.

4. Create a `ResourcePath` object. Specify the properties of the path for the resources to export using the `setValue` and `setHierarchyType` methods. Assign the resource path to the source specifier using the `setResourcePath` method.
5. Create an `ExportPolicy` object for the source. Use the `setExternalReferences` method to define whether or not any resources located outside of the selected hierarchy but referenced by the other exported resources should be included in the transfer. Assign the policy to the source specifier using the `addTransferPolicy` method.
6. Assign the source to the transfer specification using the `setTransferSource` method.
7. Create a `TransferSpecifier` object for the target and assign it to the transfer specification using the `setTransferTarget` method.
8. Provide the `transferResource` operation with the transfer specification. The returned `TransferIdentifier` value-object can be used to monitor the current status of the transfer asynchronously.

The following code sample exports the contents of the *Jobs* folder.

```
TransferSpecification transferSpec = new TransferSpecification();
transferSpec.setEngineVersion("2.0");

TransferSpecifier source = new TransferSpecifier();

ResourcePath sourceResourcePath = new ResourcePath();
sourceResourcePath.setValue("/Jobs");
sourceResourcePath.setHierarchyType(HierarchyType.FOLDER);
source.setResourcePath(sourceResourcePath);

ExportPolicy exportPolicy = new ExportPolicy();
exportPolicy.setExternalReferences(true);
source.addTransferPolicy(exportPolicy);

transferSpec.setTransferSource(source);

TransferSpecifier target = new TransferSpecifier();
transferSpec.setTransferTarget(target);

TransferIdentifier transferId = stub.transferResource(transferSpec);
```

Note that exporting large folders in enterprise environments can take hours or days and may require significant system resources.

To import resources from an export file into the repository:

1. Create a `TransferSpecification` object.
2. Create a `TransferSpecifier` object for the source. The resource snapshot of the content being imported is sent as a SOAP attachment so an empty source object specifier is sufficient. Assign it to the transfer specification using the `setTransferSource` method.
3. Create a `TransferSpecifier` object for the target.
4. Create a `ResourcePath` object. Specify an existing folder into which the source resources should be imported using the `setValue` method. Assign the resource path to the target specifier using the `setResourcePath` method.
5. Create an `ImportPolicy` object for the target. Possible policies include `AppendImportPolicy` (add new versions to the resource in the target), `NoChangeImportPolicy` (do not create any new versions if resource already exists in the target), `OverwriteImportPolicy` (delete existing versions in target and replace them with imported versions), and `ConflictResolutionImportPolicy` (generate custom conflict resolution tables for subsequent processing). Assign the policy to the target specifier using the `addTransferPolicy` method.
6. Assign the target to the transfer specification using the `setTransferTarget` method.
7. Add the resource snapshot as a SOAP attachment for the operation request.
8. Provide the `transferResource` operation with the transfer specification. The returned `TransferIdentifier` value-object can be used to monitor the current status of the transfer asynchronously.

The following code sample imports the contents of the *JobsExport.pes* file, generating a conflict resolution table to identify problems.

```
TransferSpecification transferSpec = new TransferSpecification();

TransferSpecifier source = new TransferSpecifier();
transferSpec.setTransferSource(source);

TransferSpecifier target = new TransferSpecifier();
ResourcePath targetResourcePath = new ResourcePath();
targetResourcePath.setValue("/");
target.setResourcePath(targetResourcePath);

ConflictResolutionImportPolicy conflictPolicy = new ConflictResolutionImportPolicy();
ResourcePath policyPath = new ResourcePath();
policyPath.setHierarchyType(HierarchyType.FOLDER);
conflictPolicy.setResourceIdentifier(policyPath);
target.addTransferPolicy(conflictPolicy);

transferSpec.setTransferTarget(target);

FileDataSource fileDataSource = new FileDataSource("c:/temp/JobsExport.pes");
DataHandler dataHandler = new DataHandler(fileDataSource);
AttachmentPart attachmentPart = new org.apache.axis.attachments.AttachmentPart();
attachmentPart.setDataHandler(dataHandler);
((Stub) contentRepository).addAttachment(attachmentPart);

TransferIdentifier transferIdentifier = stub.transferResource(transferSpec);
```

SOAP request example

Client invocation of the `transferResource` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <transferResource xmlns="http://xml.spss.com/repository/remote">
      <TransferSpecification xmlns="http://xml.spss.com/repository">
        <TransferSource>
          <ResourcePath value="/ModelerStreamLibrary/Data Understanding" hierarchyType="folder"/>
        </TransferSource>
        <TransferTarget/>
      </TransferSpecification>
    </transferResource>
  </soapenv:Body>
</soapenv:Envelope>
```

SOAP response example

The server responds to a `transferResource` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <transferResourceResponse xmlns="http://xml.spss.com/repository/remote">
      <TransferIdentifier xmlns="http://xml.spss.com/repository">5d947f5e7f</TransferIdentifier>
    </transferResourceResponse>
  </soapenv:Body>
</soapenv:Envelope>
```

The unlockResource operation

Unlocks a resource. This operation will be ignored if the resource is not locked.

Input fields

The following table lists the input fields for the unlockResource operation.

Table 93. Fields for unlockResource.

Field	Type/Valid Values	Description
TargetIdentificationSpecifier	IdentificationSpecifier	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

Java example

The general steps involved in unlocking a resource include:

1. Create an IdentificationSpecifier object.
2. Create an Identifier object corresponding to the type of information used to identify the object. For example, when using a repository ID, create a ResourceID object. When using the path to the resource in the repository, create a ResourcePath object.
3. Define the identifier information using the setValue method.
4. Assign the identifier to the specifier using the setIdentifier method.
5. Create a Version object.
6. Specify the version information using the setLabel and setMarker methods as needed.
7. Assign the version information to the specifier using the setVersion method.
8. Supply the unlockResource operation with the specifier object.

The following sample unlocks the *Production* version of a specified resource.

```
IdentificationSpecifier identification = new IdentificationSpecifier();

ResourceID resID = new ResourceID("0a0a4a352def327800000115cdabfc0a805a");
identification.setIdentifier(resID);

Version version = new Version();
version.setLabel("Production");
identification.setVersion(version);

stub.unlockResource(identification);
```

SOAP request example

Client invocation of the unlockResource operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
  </ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
    xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
```



```

</soapenv:Header>
<soapenv:Body>
  <unlockResource xmlns="http://xml.spss.com/repository/remote">
    <TargetIdentificationSpecifier xmlns="http://xml.spss.com/repository">
      <identifier value="0a0a4a352def327800000115cdabfc0a805a" xsi:type="ResourceID"/>
      <Version>
        <label>Production</label>
      </Version>
    </TargetIdentificationSpecifier>
  </unlockResource>
</soapenv:Body>
</soapenv:Envelope>

```

SOAP response example

The server responds to a `unlockResource` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <unlockResourceResponse xmlns="http://xml.spss.com/repository/remote"/>
  </soapenv:Body>
</soapenv:Envelope>

```

The unlockResources operation

Unlocks an array of resources. Resources that are not locked will be ignored.

Input fields

The following table lists the input fields for the `unlockResources` operation.

Table 94. Fields for `unlockResources`.

Field	Type/Valid Values	Description
TargetIdentificationSpecifier	IdentificationSpecifier[]	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

SOAP request example

Client invocation of the `unlockResources` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <unlockResources xmlns="http://xml.spss.com/repository/remote">
      <TargetIdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4a352def327800000115cdabfc0a805a" xsi:type="ResourceID"/>
        <Version>
          <label>Production</label>
        </Version>
      </TargetIdentificationSpecifier>
    </unlockResources>
  </soapenv:Body>
</soapenv:Envelope>

```

```

<TargetIdentificationSpecifier xmlns="http://xml.spss.com/repository">
  <identifier value="0a0a4a352def327800000115cdabfc0a805a" xsi:type="ResourceID"/>
  <Version>
    <label>Production</label>
  </Version>
</TargetIdentificationSpecifier>
</unlockResources>
</soapenv:Body>
</soapenv:Envelope>

```

SOAP response example

The server responds to a `unlockResources` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <unlockResourcesResponse xmlns="http://xml.spss.com/repository/remote"/>
  </soapenv:Body>
</soapenv:Envelope>

```

The updateCustomProperty operation

Updates the definition of a custom property.

Input fields

The following table lists the input fields for the `updateCustomProperty` operation.

Table 95. Fields for updateCustomProperty.

Field	Type/Valid Values	Description
CustomProperty	CustomProperty	Metadata describing a custom property defined by a customer to apply to resources.

Return information

The following table identifies the information returned by the `updateCustomProperty` operation.

Table 96. Return Value.

Type	Description
string	The identifier of the updated custom property.

Java example

The following function accepts a `CustomProperty` object containing an updated property definition. The `updateCustomProperty` operation uses this information to update the corresponding property in the repository.

```

public String updateCustomProperty(CustomProperty property)
  throws IOException, ServiceException, RepositoryException {
  ContentRepository repository = getContentRepository();
  String id = repository.updateCustomProperty(property);
  return id;
}

```

SOAP request example

Client invocation of the `updateCustomProperty` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">Native/validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <updateCustomProperty xmlns="http://xml.spss.com/repository/remote">
      <CustomProperty label="Reviewed by" identifier="0a0a4aac00072ffb00000106f3f7b05b348f"
        xmlns="http://xml.spss.com/repository">
        <appliesTo>
          <fileApplicable/>
          <jobApplicable>>false</jobApplicable>
          <folderApplicable>>false</folderApplicable>
        </appliesTo>
        <constraint>
          <freeform type="boolean"/>
        </constraint>
      </CustomProperty>
    </updateCustomProperty>
  </soapenv:Body>
</soapenv:Envelope>

```

SOAP response example

The server responds to a `updateCustomProperty` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <updateCustomPropertyResponse xmlns="http://xml.spss.com/repository/remote">
      <identifier>0a0a4aac00072ffb00000106f3f7b05b348f</identifier>
    </updateCustomPropertyResponse>
  </soapenv:Body>
</soapenv:Envelope>

```

The `updateCustomPropertyValues` operation

Updates the values for custom properties defined for a resource.

Input fields

The following table lists the input fields for the `updateCustomPropertyValues` operation.

Table 97. Fields for `updateCustomPropertyValues`.

Field	Type/Valid Values	Description
IdentificationSpecifierIn	IdentificationSpecifier	Wrapper for identification information (Id, path, version label, version marker). Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.
CustomPropertyValue	CustomPropertyValue[]	The value assigned by a user to an object for a particular custom property.
ResourceSpecifier	ResourceSpecifier	Wrapper for a resource object. Used to define service interface parameter to preserve polymorphism.

Return information

The following table identifies the information returned by the `updateCustomPropertyValues` operation.

Table 98. Return Value.

Type	Description
IdentificationSpecifier	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

Java example

To update the value for a custom property:

1. Create an `IdentificationSpecifier` object for the resource to be updated. Set the identification and version information for the resource.
2. Retrieve the existing property values for the resource using the `getCustomPropertyValues` operation.
3. Update the values as needed.
4. Create a `ResourceSpecifier` object for the resource being updated and specify the properties for the resource.
5. Supply the `updateCustomPropertyValues` operation with the identification specifier, the updated custom property values, and the resource specifier.

The following code updates the values for a single-select custom property for a file.

```
IdentificationSpecifier is = new IdentificationSpecifier();
Identifier id = new Identifier();
id.setValue("0a0a4aac00072ffb00000106561fccf88148");
is.setIdentifier(id);

CustomPropertyValue[] val = stub.getCustomPropertyValues(id);
SelectionValue[] selVal = new SelectionValue[3];
selVal[0].setValue("Richard");
selVal[0].setIsSelected(false);
selVal[1].setValue("Patrick");
selVal[1].setIsSelected(true);
selVal[2].setValue("John");
selVal[2].setIsSelected(false);
val[0].setSelect(selVal);

ResourceSpecifier rs = new ResourceSpecifier();
File file = new File();
id.setValue("0a0a4aac00072ffb00000106561fccf88148");
file.setResourceID(id);
ResourcePath rp = new ResourcePath();
rp.setValue("/ModelerStreamLibrary/Data Understanding/E02_ExploreDataQuality.str");
rp.setHierarchyType(HierarchyType.FOLDER);
file.setResourcePath(rp);
rs.setResource(file);

IdentificationSpecifier id = stub.updateCustomPropertyValues(id, val, rs);
```

SOAP request example

Client invocation of the `updateCustomPropertyValues` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">Native/validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
  </soapenv:Header>
  <soapenv:Body>
    <updateCustomPropertyValues xmlns="http://www.ibm.com/xml/soap/extension/1.0.0">
      <id>0a0a4aac00072ffb00000106561fccf88148</id>
      <val>
        <selVal>
          <value>Richard</value>
          <isSelected>false</isSelected>
        </selVal>
        <selVal>
          <value>Patrick</value>
          <isSelected>true</isSelected>
        </selVal>
        <selVal>
          <value>John</value>
          <isSelected>false</isSelected>
        </selVal>
      </val>
      <rs>
        <resourcePath>/ModelerStreamLibrary/Data Understanding/E02_ExploreDataQuality.str</resourcePath>
        <resourceType>FOLDER</resourceType>
      </rs>
    </updateCustomPropertyValues>
  </soapenv:Body>
</soapenv:Envelope>
```

```

</wsse:Security>
<ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
  xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
</soapenv:Header>
<soapenv:Body>
<updateCustomPropertyValues xmlns="http://xml.spss.com/repository/remote">
  <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
    <identifier value="0a0a4aac00072ffb00000106561fccf88148" xsi:type="ResourceID"
      xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
  </IdentificationSpecifier>
  <CustomPropertyValue label="Reviewed by" identifier="0a0a4aac00072ffb00000106f3f7b05b3856"
    xmlns="http://xml.spss.com/repository">
    <select multipleSelect="false">
      <selectionValue isSelected="false" value="Richard"/>
      <selectionValue isSelected="true" value="Patrick"/>
      <selectionValue isSelected="false" value="John"/>
    </select>
  </CustomPropertyValue>
  <ResourceSpecifier xmlns="http://xml.spss.com/repository">
    <Resource xsi:type="File" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
      <ResourceID value="0a0a4aac00072ffb00000106561fccf88148"/>
      <ResourcePath value="/ModelerStreamLibrary/Data Understanding/E02_ExploreDataQuality.str"
        hierarchyType="folder"/>
    </Resource>
  </ResourceSpecifier>
</updateCustomPropertyValues>
</soapenv:Body>
</soapenv:Envelope>

```

SOAP response example

The server responds to a `updateCustomPropertyValues` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <updateCustomPropertyValuesResponse xmlns="http://xml.spss.com/repository/remote">
      <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4aac00072ffb00000106561fccf88148" xsi:type="ResourceID"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
      </IdentificationSpecifier>
    </updateCustomPropertyValuesResponse>
  </soapenv:Body>
</soapenv:Envelope>

```

The updateCustomPropertyValuesInBulk operation

Updates a list of files or file versions to have the same custom property values.

Input fields

The following table lists the input fields for the `updateCustomPropertyValuesInBulk` operation.

Table 99. Fields for updateCustomPropertyValuesInBulk.

Field	Type/Valid Values	Description
QualifiedCustomPropertyValuesSpecifier	QualifiedCustomPropertyValuesSpecifier[]	Wrapper for an identification specifier, resource specifier and its custom properties

Return information

The following table identifies the information returned by the `updateCustomPropertyValuesInBulk` operation.

Table 100. Return Value.

Type	Description
IdentificationSpecifier[]	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

Java example

To update custom properties for multiple resources:

1. Create an array of IdentificationSpecifier objects for the resources to be updated. Set the identification and version information for each resource.
2. Create an array of ResourceSpecifier objects to contain the updated information for the resources. Set the properties for each resource.
3. Retrieve the existing custom properties for the resources using the getCustomPropertyValues operation.
4. Update the custom property values.
5. Create an array of QualifiedCustomPropertyValuesSpecifier objects for the custom properties to be updated. Set the identification, resource, and new custom property for each item in the array.
6. Supply the updateCustomPropertyValuesInBulk operation with the QualifiedCustomPropertyValuesSpecifier array.

The following code updates a boolean property for two files.

```

IdentificationSpecifier[] is = new IdentificationSpecifier[2];
ResourceID id = new ResourceID();
id.setValue("0a0a4a35c72b3963000010f588e773d8046");
is[0].setIdentifier(id);
Version vsion = new Version();
vsion.setMarker("0:2006-12-06 10:30:13.338");
is[0].setVersion(vsion);

ResourceSpecifier[] rs = new ResourceSpecifier[2];
File file = new File();
id.setValue("0a0a4a35c72b3963000010f588e773d8046");
file.setResourceID(id);
ResourcePath rp = new ResourcePath();
rp.setValue("/StatisticsLibrary/tree_model.sps");
rp.setHierarchyType(HierarchyType.FOLDER);
file.setResourcePath(rp);
rs[0].setResource(file);

id.setValue("0a0a4a35c72b3963000010f588e773d8108");
is[1].setIdentifier(id);
vsion.setMarker("0:2006-12-06 11:10:17.643");
is[1].setVersion(vsion);

file.setResourceID(id);
rp.setValue("/SASSyntaxLibrary/frequencies.sas");
rp.setHierarchyType(HierarchyType.FOLDER);
file.setResourcePath(rp);
rs[1].setResource(file);

CustomPropertyValue[] cpv = new CustomPropertyValue[2];
FreeformValue ffv = new FreeformValue();
ffv.setBooleanValue(true);
for (int i = 0; i < cpv.length; i++)
    cpv[i] = stub.getCustomPropertyValues(is[i]);
    cpv[i].setFreeform(ffv);
}

QualifiedCustomPropertyValuesSpecifier[] cpvSpec =
    new QualifiedCustomPropertyValuesSpecifier[2];
for (int i = 0; i < cpvSpec.length; i++)
    cpvSpec[i].setIdentificationSpecifier(is[i]);
    cpvSpec[i].setResourceSpecifier(rs[i]);
    cpvSpec[i].setCustomPropertyValue(cpv[i]);

```

```
}
```

```
IdentificationSpecifier[] idSpec = stub.updateCustomPropertyValuesInBulk(cpvSpec);
```

SOAP request example

Client invocation of the `updateCustomPropertyValuesInBulk` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:actor="http://schemas.xmlsoap.org/soap/actor/next"
      soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username>validUser</wsse:Username>
        <wsse:Password>password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:actor="http://schemas.xmlsoap.org/soap/actor/next"
      soapenv:mustUnderstand="0" xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0,
      en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <updateCustomPropertyValuesInBulk xmlns="http://xml.spss.com/repository/remote">
      <ns2:QualifiedCustomPropertyValuesSpecifier xmlns:ns2="http://xml.spss.com/repository">
        <ns2:IdentificationSpecifier>
          <ns2:identifier value="0a0a4a35c72b39630000010f588e773d8046" xsi:type="ResourceID"/>
          <ns2:Version marker="0:2006-12-06 10:30:13.338"/>
        </ns2:IdentificationSpecifier>
        <ns2:ResourceSpecifier>
          <ns2:Resource xsi:type="File">
            <ns2:ResourceID value="0a0a4a35c72b39630000010f588e773d8046"/>
            <ns2:ResourcePath value="/StatisticsLibrary/tree_model.sps" hierarchyType="folder"/>
            <ns2:associatedTopicList/>
          </ns2:Resource>
        </ns2:ResourceSpecifier>
        <ns2:CustomPropertyValue label="Reviewed" identifier="0a0a4a3567b4a2cc0000010fed740baa800b">
          <ns2:freeform type="boolean">
            <ns2:booleanValue>true</ns2:booleanValue>
          </ns2:freeform>
        </ns2:CustomPropertyValue>
      </ns2:QualifiedCustomPropertyValuesSpecifier>
      <ns3:QualifiedCustomPropertyValuesSpecifier xmlns:ns3="http://xml.spss.com/repository">
        <ns3:IdentificationSpecifier>
          <ns3:identifier value="0a0a4a35c72b39630000010f588e773d8108" xsi:type="ResourceID"/>
          <ns3:Version marker="0:2006-12-06 11:10:17.643"/>
        </ns3:IdentificationSpecifier>
        <ns3:ResourceSpecifier>
          <ns3:Resource xsi:type="File">
            <ns3:ResourceID value="0a0a4a35c72b39630000010f588e773d8108"/>
            <ns3:ResourcePath value="/SASSyntaxLibrary/frequencies.sas" hierarchyType="folder"/>
            <ns3:associatedTopicList/>
          </ns3:Resource>
        </ns3:ResourceSpecifier>
        <ns3:CustomPropertyValue label="Reviewed" identifier="0a0a4a3567b4a2cc0000010fed740baa800b">
          <ns3:freeform type="boolean">
            <ns3:booleanValue>true</ns3:booleanValue>
          </ns3:freeform>
        </ns3:CustomPropertyValue>
      </ns3:QualifiedCustomPropertyValuesSpecifier>
    </updateCustomPropertyValuesInBulk>
  </soapenv:Body>
</soapenv:Envelope>
```

SOAP response example

The server responds to a `updateCustomPropertyValuesInBulk` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <updateCustomPropertyValuesInBulkResponse xmlns="http://xml.spss.com/repository/remote">
      <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4a35c72b39630000010f588e773d8046" xsi:type="ResourceID"/>
      </IdentificationSpecifier>
    </updateCustomPropertyValuesInBulkResponse>
  </soapenv:Body>
</soapenv:Envelope>
```

```

    <identifier value="0a0a4a35c72b39630000010f588e773d8108" xsi:type="ResourceID"/>
  </IdentificationSpecifier>
</updateCustomPropertyValuesInBulkResponse>
</soapenv:Body>
</soapenv:Envelope>

```

The updateCustomPropertyValuesInBulkSpecific operation

Updates a list of files or file versions to have the same custom property values.

The difference between this operation and the updateCustomPropertyValuesInBulk operation is the structure of the wrapper for the resource input. The updateCustomPropertyValuesInBulk operation accepts an array of QualifiedCustomPropertyValuesSpecifier objects defining the resources. Different resource types are handled through the use of XMLSchema instance types. In contrast, the updateCustomPropertyValuesInBulkSpecific operation accepts an array of QualifiedSpecificCustomPropertyValuesSpecifier objects defining the resources. Different resource types are handled through the use of different objects for the types. For example, instead of handling a Resource object of the File type, updateCustomPropertyValuesInBulkSpecific processes a File object. Clients that cannot properly handle instance types should use updateCustomPropertyValuesInBulkSpecific instead of updateCustomPropertyValuesInBulk.

Input fields

The following table lists the input fields for the updateCustomPropertyValuesInBulkSpecific operation.

Table 101. Fields for updateCustomPropertyValuesInBulkSpecific.

Field	Type/Valid Values	Description
QualifiedSpecificCustomPropertyValuesSpecifier	QualifiedSpecificCustomPropertyValuesSpecifier[]	Wrapper for an identification specifier, resource specifier and its custom properties

Return information

The following table identifies the information returned by the updateCustomPropertyValuesInBulkSpecific operation.

Table 102. Return Value.

Type	Description
IdentificationSpecifier[]	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

Java example

To update custom properties for multiple resources:

1. Create an array of IdentificationSpecifier objects for the resources to be updated. Set the identification and version information for each resource.
2. Create an array of SpecificResourceSpecifier objects to contain the updated information for the resources. Set the properties for each resource.

3. Retrieve the existing custom properties for the resources using the `getCustomPropertyValues` operation.
4. Update the custom property values.
5. Create an array of `QualifiedSpecificCustomPropertyValuesSpecifier` objects for the custom properties to be updated. Set the identification, resource, and new custom property for each item in the array.
6. Supply the `updateCustomPropertyValuesInBulkSpecific` operation with the `QualifiedCustomPropertyValuesSpecifier` array.

The following code updates a boolean property for two files.

```

IdentificationSpecifier[] is = new IdentificationSpecifier[2];
ResourceID id = new ResourceID();
id.setValue("0a0a4a35c72b39630000010f588e773d8046");
is[0].setIdentifier(id);
Version vsion = new Version();
vsion.setMarker("0:2006-12-06 10:30:13.338");
is[0].setVersion(vsion);

SpecificResourceSpecifier[] rs = new SpecificResourceSpecifier[2];
File file = new File();
id.setValue("0a0a4a35c72b39630000010f588e773d8046");
file.setResourceID(id);
ResourcePath rp = new ResourcePath();
rp.setValue("/StatisticsLibrary/tree_model.sps");
rp.setHierarchyType(HierarchyType.FOLDER);
file.setResourcePath(rp);
rs[0].setFile(file);

id.setValue("0a0a4a35c72b39630000010f588e773d8108");
is[1].setIdentifier(id);
vsion.setMarker("0:2006-12-06 11:10:17.643");
is[1].setVersion(vsion);

file.setResourceID(id);
rp.setValue("/SASSyntaxLibrary/frequencies.sas");
rp.setHierarchyType(HierarchyType.FOLDER);
file.setResourcePath(rp);
rs[1].setFile(file);

CustomPropertyValue[] cpv = new CustomPropertyValue[2];
FreeformValue ffv = new FreeformValue();
ffv.setBooleanValue(true);
for (int i = 0; i < cpv.length; i++)
    cpv[i] = stub.getCustomPropertyValues(is[i]);
    cpv[i].setFreeform(ffv);
}

QualifiedSpecificCustomPropertyValuesSpecifier[] cpvSpec =
    new QualifiedSpecificCustomPropertyValuesSpecifier[2];
for (int i = 0; i < cpvSpec.length; i++)
    cpvSpec[i].setIdentificationSpecifier(is[i]);
    cpvSpec[i].setResourceSpecifier(rs[i]);
    cpvSpec[i].setCustomPropertyValue(cpv[i]);
}

IdentificationSpecifier[] idSpec = stub.updateCustomPropertyValuesInBulkSpecific(cpvSpec);

```

SOAP request example

Client invocation of the `updateCustomPropertyValuesInBulkSpecific` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
  </soapenv:Header>
  <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
    xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>

```

```

</soapenv:Header>
<soapenv:Body>
  <updateCustomPropertyValuesInBulkSpecific xmlns="http://xml.spss.com/repository/remote">
    <ns2:QualifiedSpecificCustomPropertyValuesSpecifier xmlns:ns2="http://xml.spss.com/repository">
      <ns2:IdentificationSpecifier>
        <ns2:identifier value="0a0a4a35c72b39630000010f588e773d8046" xsi:type="ResourceID"/>
        <ns2:Version marker="0:2006-12-06 10:30:13.338"/>
      </ns2:IdentificationSpecifier>
      <ns2:SpecificResourceSpecifier>
        <ns2:File>
          <ns2:ResourceID value="0a0a4a35c72b39630000010f588e773d8046"/>
          <ns2:ResourcePath value="/StatisticsLibrary/tree_model.sps" hierarchyType="folder"/>
          <ns2:associatedTopicList/>
        </ns2:File>
      </ns2:SpecificResourceSpecifier>
      <ns2:CustomPropertyValue label="Reviewed" identifier="0a0a4a3567b4a2cc0000010fed740baa800b">
        <ns2:freeform type="boolean">
          <ns2:booleanValue>false</ns2:booleanValue>
        </ns2:freeform>
      </ns2:CustomPropertyValue>
    </ns2:QualifiedSpecificCustomPropertyValuesSpecifier>
    <ns3:QualifiedSpecificCustomPropertyValuesSpecifier xmlns:ns3="http://xml.spss.com/repository">
      <ns3:IdentificationSpecifier>
        <ns3:identifier value="0a0a4a35c72b39630000010f588e773d8108" xsi:type="ResourceID"/>
        <ns3:Version marker="0:2006-12-06 11:10:17.643"/>
      </ns3:IdentificationSpecifier>
      <ns3:SpecificResourceSpecifier>
        <ns3:File>
          <ns3:ResourceID value="0a0a4a35c72b39630000010f588e773d8108"/>
          <ns3:ResourcePath value="/SASSyntaxLibrary/frequencies.sas" hierarchyType="folder"/>
          <ns3:associatedTopicList/>
        </ns3:File>
      </ns3:SpecificResourceSpecifier>
      <ns3:CustomPropertyValue label="Reviewed" identifier="0a0a4a3567b4a2cc0000010fed740baa800b">
        <ns3:freeform type="boolean">
          <ns3:booleanValue>false</ns3:booleanValue>
        </ns3:freeform>
      </ns3:CustomPropertyValue>
    </ns3:QualifiedSpecificCustomPropertyValuesSpecifier>
  </updateCustomPropertyValuesInBulkSpecific>
</soapenv:Body>
</soapenv:Envelope>

```

SOAP response example

The server responds to a `updateCustomPropertyValuesInBulkSpecific` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <updateCustomPropertyValuesInBulkSpecificResponse xmlns="http://xml.spss.com/repository/remote">
      <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4a35c72b39630000010f588e773d8046" xsi:type="ResourceID"/>
      </IdentificationSpecifier>
      <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4a35c72b39630000010f588e773d8108" xsi:type="ResourceID"/>
      </IdentificationSpecifier>
    </updateCustomPropertyValuesInBulkSpecificResponse>
  </soapenv:Body>
</soapenv:Envelope>

```

The updateCustomPropertyValuesSpecific operation

Updates the values for custom properties defined for a resource.

The difference between this operation and the `updateCustomPropertyValues` operation is the structure of the wrapper for the resource input. The `updateCustomPropertyValues` operation accepts a `ResourceSpecifier` object defining the resource. Different resource types are handled through the use of `XMLSchema` instance types. In contrast, the `updateCustomPropertyValuesSpecific` operation accepts a `SpecificResourceSpecifier` object defining the resource. Different resource types are handled through the use of different objects for the types. For example, instead of handling a `Resource` object of the `File` type, `updateCustomPropertyValuesSpecific` processes a `File` object. Clients that cannot properly handle instance types should use `updateCustomPropertyValuesSpecific` instead of `updateCustomPropertyValues`.

Input fields

The following table lists the input fields for the `updateCustomPropertyValuesSpecific` operation.

Table 103. Fields for `updateCustomPropertyValuesSpecific`.

Field	Type/Valid Values	Description
<code>IdentificationSpecifierIn</code>	<code>IdentificationSpecifier</code>	Wrapper for identification information (Id, path, version label, version marker). Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.
<code>CustomPropertyValue</code>	<code>CustomPropertyValue[]</code>	The value assigned by a user to an object for a particular custom property.
<code>SpecificResourceSpecifier</code>	<code>SpecificResourceSpecifier</code>	Wrapper for a resource object. Used to define service interface parameter to preserve polymorphism.

Return information

The following table identifies the information returned by the `updateCustomPropertyValuesSpecific` operation.

Table 104. Return Value.

Type	Description
<code>IdentificationSpecifier</code>	Wrapper for identification information (Id, path, version label, version marker). Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

Java example

To update the value for a custom property:

1. Create an `IdentificationSpecifier` object for the resource to be updated. Set the identification and version information for the resource.
2. Retrieve the existing property values for the resource using the `getCustomPropertyValues` operation.
3. Update the values as needed.
4. Create a `SpecificResourceSpecifier` object for the resource being updated and specify the properties for the resource.
5. Supply the `updateCustomPropertyValues` operation with the identification specifier, the updated custom property values, and the specific resource specifier.

The following code updates the values for a single-select custom property for a file.

```
IdentificationSpecifier is = new IdentificationSpecifier();
ResourceID id = new ResourceID();
id.setValue("0a0a4a35bad1b0750000010f3a50fe4980e6");

CustomPropertyValue[] val = stub.getCustomPropertyValues(id);
SelectionValue[] selVal = new SelectionValue[3];
selVal[0].setValue("Steve Bennett");
selVal[0].setIsSelected(true);
selVal[1].setValue("Lois Sanborn");
selVal[1].setIsSelected(false);
val[0].setSelect(selVal);

SpecificResourceSpecifier rs = new SpecificResourceSpecifier();
```

```

File file = new File();
id.setValue("0a0a4a35bad1b0750000010f3a50fe4980e6");
file.setResourceID(id);
ResourcePath rp = new ResourcePath();
rp.setValue("/ModelerStreamLibrary/drugplot.str");
rp.setHierarchyType(HierarchyType.FOLDER);
file.setResourcePath(rp);
rs.setFile(file);

IdentificationSpecifier id = stub.updateCustomPropertyValues(id, val, rs);

```

SOAP request example

Client invocation of the `updateCustomPropertyValuesSpecific` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <updateCustomPropertyValuesSpecific xmlns="http://xml.spss.com/repository/remote">
      <IdentificationSpecifierIn xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4a35bad1b0750000010f3a50fe4980e6"/>
      </IdentificationSpecifierIn>
      <ns3:CustomPropertyValue label="Reviewed by" identifier="0a0a4a35e6ff9b20000010f4db6f82f814f"
        xmlns:ns3="http://xml.spss.com/repository">
        <ns3:select multipleSelect="false">
          <ns3:selectionValue isSelected="true" value="Steve Bennett"/>
          <ns3:selectionValue isSelected="false" value="Lois Sanborn"/>
        </ns3:select>
      </ns3:CustomPropertyValue>
      <SpecificResourceSpecifier xmlns="http://xml.spss.com/repository">
        <File>
          <ResourceID value="0a0a4a35bad1b0750000010f3a50fe4980e6"/>
          <ResourcePath value="/ModelerStreamLibrary/drugplot.str"
            hierarchyType="folder"/>
        </File>
      </SpecificResourceSpecifier>
    </updateCustomPropertyValuesSpecific>
  </soapenv:Body>
</soapenv:Envelope>

```

SOAP response example

The server responds to a `updateCustomPropertyValuesSpecific` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <updateCustomPropertyValuesSpecificResponse xmlns="http://xml.spss.com/repository/remote">
      <IdentificationSpecifierOut xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4a35bad1b0750000010f3a50fe4980e6" xsi:type="ResourceID"/>
      </IdentificationSpecifierOut>
    </updateCustomPropertyValuesSpecificResponse>
  </soapenv:Body>
</soapenv:Envelope>

```

The updateLabel operation

Updates the security for a specified label. Typically the security for a label is returned by the `getLabelSecurity` operation and modified as needed before calling this operation.

This operation cannot be used to create a label. The label must already be applied to a resource version in the IBM SPSS Collaboration and Deployment Services Repository.

Input fields

The following table lists the input fields for the `updateLabel` operation.

Table 105. Fields for `updateLabel`.

Field	Type/Valid Values	Description
SecureLabel	SecureLabel	Wrapper for a secure label, contains the label and its Access Control List (ACL).

Java example

To update the security definition for a label:

1. Use the `getLabelSecurity` operation to return the `SecureLabel` object for the label being modified.
2. Modify the `SecureLabel` object settings. For example, the permissions for principals may be altered or a new principal may be added to the access control list.
3. Supply the `updateLabel` operation with the revised label object.

The following sample adds a new principal having the *Read* permission to the *Production* label.

```
String myLabel = "Production";
SecureLabel labelSec = stub.getLabelSecurity(myLabel);

AccessControlEntry ace = new AccessControlEntry();
ace.setPermission(PermissionType.READ);
Principal princ = new Principal();
princ.setID("//uAD/spss/gsap");
princ.setDisplayName("gsap (spss)");
princ.setName("gsap (spss)");
princ.setIsGroup(false);
ace.setPrincipal(princ);

AccessControlList acl = labelSec.getAcl();
acl.addAccessControlEntry(ace);

stub.updateLabel(labelSec);
```

SOAP request example

Client invocation of the `updateLabel` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <updateLabel xmlns="http://xml.spss.com/repository/remote">
      <SecureLabel label="Production" canRead="true" canModify="true"
        xmlns="http://xml.spss.com/repository">
        <acl>
          <AccessControlEntry Permission="READ">
            <Principal ID="//uAD/spss/aessa" DisplayName="aessa (spss)"
              Name="aessa (spss)" IsGroup="false"/>
          </AccessControlEntry>
          <AccessControlEntry Permission="READ">
```

```

        <Principal ID="//uAD/spss/gsap" DisplayName="gsap (spss)"
            Name="gsap (spss)" IsGroup="false"/>
    </AccessControlEntry>
    <AccessControlEntry Permission="READ">
        <Principal ID="//uAD/spss/kkruger" DisplayName="kkruger (spss)"
            Name="kkruger" IsGroup="false"/>
    </AccessControlEntry>
    <AccessControlEntry Permission="MODIFY">
        <Principal ID="//uAD/spss/kkruger" DisplayName="kkruger (spss)"
            Name="kkruger" IsGroup="false"/>
    </AccessControlEntry>
    </acl>
</SecureLabel>
</updateLabel>
</soapenv:Body>
</soapenv:Envelope>

```

SOAP response example

The server responds to a `updateLabel` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
    xmlns:xsd="http://www.w3.org/2001/XMLSchema"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <soapenv:Body>
        <updateLabelResponse xmlns="http://xml.spss.com/repository/remote"/>
    </soapenv:Body>
</soapenv:Envelope>

```

The updateLabels operation

Updates the security for multiple labels in the system. Typically the security for labels is returned by the `getLabelSecurity` or `getAllLabelSecurity` operations and modified as needed before calling this operation.

This operation cannot be used to create labels. The labels must already be applied to resource versions in the IBM SPSS Collaboration and Deployment Services Repository.

Input fields

The following table lists the input fields for the `updateLabels` operation.

Table 106. Fields for updateLabels.

Field	Type/Valid Values	Description
SecureLabel	SecureLabel[]	Wrapper for a secure label, contains the label and its Access Control List (ACL).

Java example

To update the security definition for multiple labels:

1. Use the `getAllLabelSecurity` operation to return an array of `SecureLabel` objects in the system.
2. Modify the settings for the `SecureLabel` objects. For example, the permissions for principals may be altered or a new principal may be added to the access control list.
3. Supply the `updateLabels` operation with the revised label objects.

The following sample adds a new principal having the *Modify* permission to the first label object and changes the permission for the first principal in the access control list for the second label to *Read*.

```

SecureLabel[] labelSec = stub.getAllLabelSecurity(myLabel);

AccessControlEntry ace = new AccessControlEntry();
ace.setPermission(PermissionType.MODIFY);
Principal princ = new Principal();

```

```

princ.setID("//gNative//$$security/everyoneGroup");
princ.setDisplayName("-- everyone --");
princ.setName("$$security/everyoneGroup");
princ.setIsGroup(true);
ace.setPrincipal(princ);
AccessControlList acl = labelSec[0].getAcl();
acl.addAccessControlEntry(ace);
labelSec[0].setAcl(acl);

AccessControlList changeAcl = labelSec[1].getAcl();
AccessControlEntry[] editAce = changeAcl.getAccessControlEntry();
editAce[0].setPermission(PermissionType.READ);
changeAcl.setAccessControlEntry(editAce);
labelSec[1].setAcl(changeAcl);

stub.updateLabels(labelSec);

```

SOAP request example

Client invocation of the `updateLabels` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <updateLabels xmlns="http://xml.spss.com/repository/remote">
      <SecureLabel label="Draft" canRead="true" canModify="true"
        xmlns="http://xml.spss.com/repository">
        <acl>
          <AccessControlEntry Permission="MODIFY">
            <Principal ID="//gNative//$$security/everyoneGroup"
              DisplayName="-- everyone --" Name="$$security/everyoneGroup"
              IsGroup="true"/>
          </AccessControlEntry>
          <AccessControlEntry Permission="READ">
            <Principal ID="//gNative//$$security/everyoneGroup"
              DisplayName="-- everyone --" Name="$$security/everyoneGroup"
              IsGroup="true"/>
          </AccessControlEntry>
          <owner ID="" Name=""/>
        </acl>
      </SecureLabel>
      <SecureLabel label="Production" canRead="true" canModify="true"
        xmlns="http://xml.spss.com/repository">
        <acl>
          <AccessControlEntry Permission="READ">
            <Principal ID="//uAD/spss/aessa" DisplayName="aessa (spss)"
              Name="aessa (spss)" IsGroup="false"/>
          </AccessControlEntry>
          <AccessControlEntry Permission="MODIFY">
            <Principal ID="//uAD/spss/kkruger" DisplayName="kkruiger (spss)"
              Name="kkruiger" IsGroup="false"/>
          </AccessControlEntry>
          <AccessControlEntry Permission="READ">
            <Principal ID="//uAD/spss/kkruger" DisplayName="kkruiger (spss)"
              Name="kkruiger" IsGroup="false"/>
          </AccessControlEntry>
          <owner ID="" Name=""/>
        </acl>
      </SecureLabel>
    </updateLabels>
  </soapenv:Body>
</soapenv:Envelope>

```

SOAP response example

The server responds to a `updateLabels` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <updateLabelsResponse xmlns="http://xml.spss.com/repository/remote"/>
  </soapenv:Body>
</soapenv:Envelope>
```

The updateResource operation

Updates the metadata for an existing resource version. The main difference between `updateResource` and `createResource` is that `update` cannot be used to create an initial or subsequent version of a resource.

Updating a resource is similar to creating a resource. In order to establish some limited concurrency control, when a resource is updated, the metadata for that resource must have been explicitly obtained through the `getResource` or the `getChildren` operations. The modification date of the resource must be explicitly passed as part of the resource when an update request occurs. If the modification date/time of the request does not match the current modification date of the resource in the repository, the update will not be allowed and an exception will be thrown.

It is not necessary that all the metadata for a resource be obtained before the request. The client must supply at least an identifier and the modification date, as well as the metadata to be updated. For each piece of metadata, there is an instance in the resource. This instance is null unless explicitly set by the client or the server implementation. There is an important distinction between an instance of metadata being null and the value within the instance being null. If the server implementation handling the update comes across a metadata instance that is null, it will ignore it because it has not been set by either the client or a previous server request. This insures that on an update request no metadata that previously had a valid value will be nulled accidentally.

For example, suppose that on a previous request a client had obtained a resource with just the modification date, author, and resource ID explicitly specified. All the other metadata instances in the request will be null. If there was not an author associated with the resource, the instance would not be null but the value of the instance (the value inside the Author object) would be null. The client could set a valid author and issue the update request. The only fields that would be modified would be those previously requested.

As another example, suppose `getResource` had been previously issued to obtain the metadata for the resource. A `getResource` call always returns all the metadata associated with the resource, with the exception of binary content, which is not considered metadata. The user changes the value for author and then issues the update request. All of the metadata for the resource would be updated but, with the exception of author, it would just be updated to its existing value.

Input fields

The following table lists the input fields for the `updateResource` operation.

Table 107. Fields for updateResource.

Field	Type/Valid Values	Description
TargetIdentificationSpecifier	IdentificationSpecifier	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

Table 107. Fields for updateResource (continued).

Field	Type/Valid Values	Description
ResourceSpecifier	ResourceSpecifier	Wrapper for a resource object. Used to define service interface parameter to preserve polymorphism.

Return information

The following table identifies the information returned by the updateResource operation.

Table 108. Return Value.

Type	Description
IdentificationSpecifier	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

Java example

The following sample updates a file resource by changing the author and associating the file with an existing topic.

```
ResourcePath rp = new ResourcePath();
rp.setValue("/") + getFolderName() + "/myNewFile.xls");
IdentificationSpecifier is = new IdentificationSpecifier();
is.setIdentifier(rp);
ResourceSpecifier rs = stub.getResource(is);
File f = (File)rs.getResource();
f.getAuthor().setValue("J.Q. Public");
ResourcePath rpt = new ResourcePath();
rpt.setValue("/myTopicHierarchy/myFirstTopic");
f.addAssociatedTopic(rpt);
stub.updateResource(getResourceSpecifier(f));
```

SOAP request example

Client invocation of the updateResource operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">Native/validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <updateResource xmlns="http://xml.spss.com/repository/remote">
      <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4aac00072ffb00000106a7a10b13803c" xsi:type="ResourceID"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
      </IdentificationSpecifier>
      <ResourceSpecifier xmlns="http://xml.spss.com/repository">
        <Resource xsi:type="File" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
          <ResourceID value="0a0a4aac00072ffb00000106a7a10b13803c"/>
          <ResourcePath value="/ModelerStreamLibrary/Joining Age.html" hierarchyType="folder"/>
        </Resource>
      </ResourceSpecifier>
    </updateResource>
  </soapenv:Body>
</soapenv:Envelope>
```

SOAP response example

The server responds to a `updateResource` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <updateResourceResponse xmlns="http://xml.spss.com/repository/remote">
      <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4aac00072ffb00000106a7a10b13803c" xsi:type="ResourceID"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"/>
      </IdentificationSpecifier>
    </updateResourceResponse>
  </soapenv:Body>
</soapenv:Envelope>
```

The updateResourceMaintenanceProviders operation

This operation is for internal use only.

Input fields

The following table lists the input fields for the `updateResourceMaintenanceProviders` operation.

Table 109. Fields for updateResourceMaintenanceProviders.

Field	Type/Valid Values	Description
ResourceMaintenanceProviderSpecifier	ResourceMaintenanceProviderSpecifier[]	Wrapper for a resource maintenance provider. Used to define service interface parameter to preserve polymorphism.

The updateResources operation

Updates a list of files or file versions with differing metadata sets. Each file or version is updated individually. The results of this operation are identical to calling the `updateResource` operation for each resource to be updated. However, using `updateResources`, only one web service call is needed.

The `IdentificationSpecifier` and `ResourceSpecifier` arrays must be of the same size, with the location in the array identifying which update applies to which URI. For example, the first `IdentificationSpecifier` corresponds to the first `ResourceSpecifier`.

Input fields

The following table lists the input fields for the `updateResources` operation.

Table 110. Fields for updateResources.

Field	Type/Valid Values	Description
IdentificationSpecifier	IdentificationSpecifier[]	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.
ResourceSpecifier	ResourceSpecifier[]	Wrapper for a resource object. Used to define service interface parameter to preserve polymorphism.

Return information

The following table identifies the information returned by the `updateResources` operation.

Table 111. Return Value.

Type	Description
IdentificationSpecifier[]	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

Java example

To update multiple resources:

1. Create an array of `IdentificationSpecifier` objects for the resources to be updated. Set the identification and version information for each resource.
2. Create an array of `ResourceSpecifier` objects to contain the updated information for the resources. Set the new properties for each resource.
3. Supply the `updateResources` operation with both arrays.

The following code updates the expiration dates for two files.

```
IdentificationSpecifier[] is = new IdentificationSpecifier[2];

ResourceID id = new ResourceID();
id.setValue("0a0a4a35bad1b0750000010f3a50fe4980e6");
is[0].setIdentifier(id);
Version vsion = new Version();
vsion.setMarker("0:2006-11-30 14:19:20.769");
is[0].setVersion(vsion);

id.setValue("0a0a4a353da969fa0000010ef0fcc01f8649");
is[1].setIdentifier(id);
vsion.setMarker("0:2006-11-17 09:59:42.666");
vsion.setLabel("Production");
is[1].setVersion(vsion);

ResourceSpecifier[] rs = new ResourceSpecifier[2];
File file = new File();
id.setValue("0a0a4a35bad1b0750000010f3a50fe4980e6");
file.setResourceID(id);
ResourcePath rp = new ResourcePath();
rp.setValue("/ModelerStreamLibrary/drugplot.str");
rp.setHierarchyType(HierarchyType.FOLDER);
file.setResourcePath(rp);
ExpirationDate exp = new ExpirationDate();
Calendar date = new Calendar();
date.set(2007, 01, 31, 0, 0, 0);
exp.setValue(date);
file.setExpirationDate(exp);
rs[0].setResource(file);

id.setValue("0a0a4a353da969fa0000010ef0fcc01f8649");
file.setResourceID(id);
rp.setValue("/StatisticsLibrary/tree_model.sps");
rp.setHierarchyType(HierarchyType.FOLDER);
file.setResourcePath(rp);
date.set(2007, 01, 31, 0, 0, 0);
exp.setValue(date);
file.setExpirationDate(exp);
rs[1].setResource(file);

IdentificationSpecifier[] idspec = stub.updateResources(is, rs);
```

SOAP request example

Client invocation of the `updateResources` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <updateResources xmlns="http://xml.spss.com/repository/remote">
      <ns2:IdentificationSpecifier xmlns:ns2="http://xml.spss.com/repository">
        <ns2:identifier value="0a0a4a35bad1b0750000010f3a50fe4980e6" xsi:type="ResourceID"/>
        <ns2:Version marker="0:2006-11-30 14:19:20.769"/>
      </ns2:IdentificationSpecifier>
      <ns3:IdentificationSpecifier xmlns:ns3="http://xml.spss.com/repository">
        <ns3:identifier value="0a0a4a353da969fa0000010ef0fcc01f8649" xsi:type="ResourceID"/>
        <ns3:Version marker="0:2006-11-17 09:59:42.666">
          <ns3:label>Production</ns3:label>
        </ns3:Version>
      </ns3:IdentificationSpecifier>
      <ns4:ResourceSpecifier xmlns:ns4="http://xml.spss.com/repository">
        <ns4:Resource xsi:type="File">
          <ns4:ResourceID value="0a0a4a35bad1b0750000010f3a50fe4980e6"/>
          <ns4:ResourcePath value="/ModelStreamLibrary/drugplot.str" hierarchyType="folder"/>
          <ns4:ExpirationDate value="2007-01-31T00:00:00.000-06:00"/>
          <ns4:associatedTopicList/>
        </ns4:Resource>
      </ns4:ResourceSpecifier>
      <ns5:ResourceSpecifier xmlns:ns5="http://xml.spss.com/repository">
        <ns5:Resource xsi:type="File">
          <ns5:ResourceID value="0a0a4a353da969fa0000010ef0fcc01f8649"/>
          <ns5:ResourcePath value="/StatisticsLibrary/tree_model.sps" hierarchyType="folder"/>
          <ns5:ExpirationDate value="2007-01-31T00:00:00.000-06:00"/>
          <ns5:associatedTopicList/>
        </ns5:Resource>
      </ns5:ResourceSpecifier>
    </updateResources>
  </soapenv:Body>
</soapenv:Envelope>

```

SOAP response example

The server responds to a `updateResources` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <updateResourcesResponse xmlns="http://xml.spss.com/repository/remote">
      <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4a35bad1b0750000010f3a50fe4980e6" xsi:type="ResourceID"/>
      </IdentificationSpecifier>
      <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4a353da969fa0000010ef0fcc01f8649" xsi:type="ResourceID"/>
      </IdentificationSpecifier>
    </updateResourcesResponse>
  </soapenv:Body>
</soapenv:Envelope>

```

The updateResourceSpecific operation

Updates the metadata for an existing resource version. The main difference between `updateResourceSpecific` and `createResourceSpecific` is that `update` cannot be used to create an initial or subsequent version of a resource.

The difference between this operation and the `updateResource` operation is the structure of the wrapper for the resource input. The `updateResource` operation accepts a `ResourceSpecifier` object defining the resource. Different resource types are handled through the use of XMLSchema instance types. In contrast, the `updateResourceSpecific` operation accepts a `SpecificResourceSpecifier` object defining the resource.

Different resource types are handled through the use of different objects for the types. For example, instead of handling a Resource object of the File type, `updateResourceSpecific` processes a File object. Clients that cannot properly handle instance types should use `updateResourceSpecific` instead of `updateResource`.

Input fields

The following table lists the input fields for the `updateResourceSpecific` operation.

Table 112. Fields for `updateResourceSpecific`.

Field	Type/Valid Values	Description
<code>TargetIdentificationSpecifier</code>	<code>IdentificationSpecifier</code>	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.
<code>SpecificResourceSpecifier</code>	<code>SpecificResourceSpecifier</code>	Wrapper for a resource object. Used to define service interface parameter to preserve polymorphism.

Return information

The following table identifies the information returned by the `updateResourceSpecific` operation.

Table 113. Return Value.

Type	Description
<code>IdentificationSpecifier</code>	Wrapper for identification information(Id, path, version label, version marker).Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

Java example

To update a resource:

1. Create an `IdentificationSpecifier` object for the resource to be updated. Set the identification and version information for the resource.
2. Create a `SpecificResourceSpecifier` object to contain the updated information for the resource. Set the new properties for the resource.
3. Supply the `updateResourceSpecific` operation with both specifiers.

The following code updates the label for a file.

```

IdentificationSpecifier is = new IdentificationSpecifier();
ResourceID id = new ResourceID();
id.setValue("0a0a4a353da969fa0000010ef0fcc01f8649");
is.setIdentifier(id);

SpecificResourceSpecifier rs = new SpecificResourceSpecifier();
File file = new File();
Version vsion = new Version();
vsion.setLabel("Production");
file.setVersion(vsion);
rs.setFile(file);

IdentificationSpecifier idspec = stub.updateResourceSpecific(is, rs);

```

SOAP request example

Client invocation of the `updateResourceSpecific` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <updateResourceSpecific xmlns="http://xml.spss.com/repository/remote">
      <TargetIdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4a353da969fa0000010ef0fcc01f8649"/>
      </TargetIdentificationSpecifier>
      <SpecificResourceSpecifier xmlns="http://xml.spss.com/repository">
        <File>
          <Version>
            <label>Production</label>
          </Version>
        </File>
      </SpecificResourceSpecifier>
    </updateResourceSpecific>
  </soapenv:Body>
</soapenv:Envelope>
```

SOAP response example

The server responds to a `updateResourceSpecific` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <updateResourceSpecificResponse xmlns="http://xml.spss.com/repository/remote">
      <IdentificationSpecifier xmlns="http://xml.spss.com/repository">
        <identifier value="0a0a4a353da969fa0000010ef0fcc01f8649" xsi:type="ResourceID"/>
        <Version>
          <label>Production</label>
        </Version>
      </IdentificationSpecifier>
    </updateResourceSpecificResponse>
  </soapenv:Body>
</soapenv:Envelope>
```

The `updateResourcesSpecific` operation

Updates a list of files or file versions with differing metadata sets. Each file or version is updated individually. The results of this operation are identical to calling the `updateResourceSpecific` operation for each resource to be updated. However, using `updateResourcesSpecific`, only one web service call is needed.

The difference between this operation and the `updateResources` operation is the structure of the wrapper for the resource input. The `updateResources` operation accepts an array of `ResourceSpecifier` objects defining the resources. Different resource types are handled through the use of XMLSchema instance types. In contrast, the `updateResourcesSpecific` operation accepts an array of `SpecificResourceSpecifier` objects defining the resources. Different resource types are handled through the use of different objects for the types. For example, instead of handling a `Resource` object of the `File` type, `updateResourcesSpecific` processes a `File` object. Clients that cannot properly handle instance types should use `updateResourcesSpecific` instead of `updateResources`.

Input fields

The following table lists the input fields for the `updateResourcesSpecific` operation.

Table 114. Fields for `updateResourcesSpecific`.

Field	Type/Valid Values	Description
<code>TargetIdentificationSpecifier</code>	<code>IdentificationSpecifier[]</code>	Wrapper for identification information (Id, path, version label, version marker). Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.
<code>SpecificResourceSpecifier</code>	<code>SpecificResourceSpecifier[]</code>	Wrapper for a resource object. Used to define service interface parameter to preserve polymorphism.

Return information

The following table identifies the information returned by the `updateResourcesSpecific` operation.

Table 115. Return Value.

Type	Description
<code>IdentificationSpecifier[]</code>	Wrapper for identification information (Id, path, version label, version marker). Used to define service interface parameters and return values and preserve polymorphism of wrapped objects.

Java example

To update multiple resources:

1. Create an array of `IdentificationSpecifier` objects for the resources to be updated. Set the identification and version information for each resource.
2. Create an array of `SpecificResourceSpecifier` objects to contain the updated information for the resources. Set the new properties for each resource.
3. Supply the `updateResourcesSpecific` operation with both arrays.

The following code updates the expiration dates for two files.

```
IdentificationSpecifier[] is = new IdentificationSpecifier[2];

ResourceID id = new ResourceID();
id.setValue("0a0a4a35bad1b0750000010f3a50fe4980e6");
is[0].setIdentifier(id);
Version vsion = new Version();
vsion.setMarker("0:2006-11-30 14:19:20.769");
is[0].setVersion(vSION);

id.setValue("0a0a4a353da969fa0000010ef0fcc01f8649");
is[1].setIdentifier(id);
vsion.setMarker("0:2006-11-17 09:59:42.666");
vsion.setLabel("Production");
is[1].setVersion(vSION);

SpecificResourceSpecifier[] rs = new SpecificResourceSpecifier[2];
File file = new File();
id.setValue("0a0a4a35bad1b0750000010f3a50fe4980e6");
file.setResourceID(id);
ResourcePath rp = new ResourcePath();
rp.setValue("/ModelerStreamLibrary/drugplot.str");
rp.setHierarchyType(HierarchyType.FOLDER);
file.setResourcePath(rp);
ExpirationDate exp = new ExpirationDate();
```

```

Calendar date = new Calendar();
date.set(2007, 01, 31, 0, 0, 0);
exp.setValue(date);
file.setExpirationDate(exp);
rs[0].setFile(file);

id.setValue("0a0a4a353da969fa0000010ef0fcc01f8649");
file.setResourceID(id);
rp.setValue("/StatisticsLibrary/tree_model.sps");
rp.setHierarchyType(HierarchyType.FOLDER);
file.setResourcePath(rp);
date.set(2007, 01, 31, 0, 0, 0);
exp.setValue(date);
file.setExpirationDate(exp);
rs[1].setFile(file);

IdentificationSpecifier[] idspec = stub.updateResourcesSpecific(is, rs);

```

SOAP request example

Client invocation of the `updateResourcesSpecific` operation generates a SOAP request message that is sent to the server for processing. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="0"
      xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken>
        <wsse:Username xsi:type="xsd:string">validUser</wsse:Username>
        <wsse:Password xsi:type="xsd:string">password</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
    <ns1:client-accept-language soapenv:mustUnderstand="0" xsi:type="xsd:string"
      xmlns:ns1="http://xml.spss.com/ws/headers">en-US;q=1.0, en;q=0.8</ns1:client-accept-language>
  </soapenv:Header>
  <soapenv:Body>
    <updateResourcesSpecific xmlns="http://xml.spss.com/repository/remote">
      <ns2:IdentificationSpecifier xmlns:ns2="http://xml.spss.com/repository">
        <ns2:identifier value="0a0a4a35bad1b0750000010f3a50fe4980e6" xsi:type="ResourceID"/>
        <ns2:Version marker="0:2006-11-30 14:19:20.769"/>
      </ns2:IdentificationSpecifier>
      <ns3:IdentificationSpecifier xmlns:ns3="http://xml.spss.com/repository">
        <ns3:identifier value="0a0a4a353da969fa0000010ef0fcc01f8649" xsi:type="ResourceID"/>
        <ns3:Version marker="0:2006-11-17 09:59:42.666">
          <ns3:label>Production</ns3:label>
        </ns3:Version>
      </ns3:IdentificationSpecifier>
      <ns4:SpecificResourceSpecifier xmlns:ns4="http://xml.spss.com/repository">
        <ns4:File>
          <ns4:ResourceID value="0a0a4a35bad1b0750000010f3a50fe4980e6"/>
          <ns4:ResourcePath value="/ModelerStreamLibrary/drugplot.str" hierarchyType="folder"/>
          <ns4:ExpirationDate value="2007-01-31T00:00:00.000-06:00"/>
          <ns4:associatedTopicList/>
        </ns4:File>
      </ns4:SpecificResourceSpecifier>
      <ns5:SpecificResourceSpecifier xmlns:ns5="http://xml.spss.com/repository">
        <ns5:File>
          <ns5:ResourceID value="0a0a4a353da969fa0000010ef0fcc01f8649"/>
          <ns5:ResourcePath value="/StatisticsLibrary/tree_model.sps" hierarchyType="folder"/>
          <ns5:ExpirationDate value="2007-01-31T00:00:00.000-06:00"/>
          <ns5:associatedTopicList/>
        </ns5:File>
      </ns5:SpecificResourceSpecifier>
    </updateResourcesSpecific>
  </soapenv:Body>
</soapenv:Envelope>

```

SOAP response example

The server responds to a `updateResourcesSpecific` operation call by sending a SOAP response message containing the results. An example of such a message follows.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <updateResourcesSpecificResponse xmlns="http://xml.spss.com/repository/remote">
      <IdentificationSpecifier xmlns="http://xml.spss.com/repository">

```



```
<identifier value="0a0a4a35bad1b075000010f3a50fe4980e6" xsi:type="ResourceID"/>
</IdentificationSpecifier>
<IdentificationSpecifier xmlns="http://xml.spss.com/repository">
  <identifier value="0a0a4a353da969fa0000010ef0fcc01f8649" xsi:type="ResourceID"/>
</IdentificationSpecifier>
</updateResourcesSpecificResponse>
</soapenv:Body>
</soapenv:Envelope>
```

Chapter 5. JAX-WS clients

Java developers can create custom web service clients by using JAX-WS.

The discussion here assumes the use of Java 6. In general, the process for accessing IBM SPSS Collaboration and Deployment Services web services involves the following steps:

1. Generate a web service client using `wsimport`
2. Package the client
3. Programmatically configure the client
4. Exercise the web service

Generating a JAX-WS client

To generate a JAX-WS client, open a command prompt and execute the Java 6 `wsimport` command.

The `wsimport` command creates JAX-WS service classes and JAXB classes that represent the WSDL schema. For example, the following command executes `wsimport` for the `Scoring.HttpV2` service, storing the output in the current directory:

```
"c:\Program Files\IBM\Java60\bin\wsimport.exe" http://localhost:7001/scoring/services/Scoring.HttpV2?wsdl
```

In this example, the command obtained the WSDL from the server by using the endpoint name followed by `?wsdl`. The `wsimport` command requires access to the WSDL in order to generate the files. JAX-WS also requires access to the WSDL file during runtime, so this example hard codes the value provided to `wsimport` in the Java code. The generated client fetches the WSDL from that same location unless otherwise specified. An alternative is to store the WSDL locally and refer to the local copy rather than downloading the WSDL from the server.

Packaging a JAX-WS client

A JAX-WS client must be packaged as a jar file.

The following example command creates a jar file named `scoring.jar`:

```
"c:\Program Files\IBM\Java60\bin\jar.exe" -cvf scoring.jar *
```

This command assumes the command prompt is in the same location in which the client was generated.

If you store the WSDL locally, include the WSDL and XSD files in the jar file. Place the files in the `\META-INF\wsdl` directory within the file. Refer to that directory programmatically when configuring the client.

Configuring a JAX-WS client

JAX-WS clients can obtain the WSDL file remotely from the server or locally from within the jar file.

The following example demonstrates obtaining the WSDL from the server:

```
com.spss.scoring.ws.jaxws.ScoringServices service =  
    new com.spss.scoring.ws.jaxws.ScoringServices(  
        new URL("http://localhost:7001/scoring/services/Scoring.HttpV2?wsdl"),  
        new QName("http://xml.spss.com/scoring/wsdl", "ScoringServices"));
```

The URL includes the host and port for your server.

The following example demonstrates obtaining the WSDL from the within the jar file:

```
com.spss.scoring.ws.jaxws.ScoringServices service =
    new com.spss.scoring.ws.jaxws.ScoringServices(
        DemoClass.class.getResource("/META-INF/wsd1/scoring.wsd1"),
        new QName("http://xml.spss.com/scoring/wsd1", "ScoringServices"));
```

In order to include the required SOAP security headers, create an object that implements `SOAPHandler<SOAPMessageContext>`. See “SOAPHandler example” for an example handler object. The following example shows how this object is used:

```
service.setHandlerResolver(new HandlerResolver()
{
    @Override
    public List<Handler> getHandlerChain(PortInfo portInfo)
    {
        List<Handler> handlerChain = new ArrayList<Handler>();
        handlerChain.add(new SecurityHandler("user", "password", "en-US;q=1.0, en;q=0.8"));
        return handlerChain;
    }
});
```

Next, access the service endpoint:

```
ScoringV2 serviceEndpoint = service.getHttpV2();
```

After obtaining the service endpoint, set the JAX-WS standard endpoint address property, which specifies the URL at which to access the endpoint.

```
Map<String, Object> requestContext = ((BindingProvider)serviceEndpoint).getRequestContext();
requestContext.put(BindingProvider.ENDPOINT_ADDRESS_PROPERTY,
    "http://localhost:7001/scoring/services/Scoring.HttpV2");
```

SOAPHandler example

JAX-WS clients must include an object that implements `SOAPHandler<SOAPMessageContext>`.

The following code provides an example of this object.

```
/*
*****
** Licensed Materials - Property of IBM
** IBM SPSS Products: Collaboration and Deployment Services
** © Copyright IBM Corp. 2000, 2013
** US Government Users Restricted Rights - Use, duplication or
** disclosure restricted by GSA ADP Schedule Contract with IBM Corp.
**
*****
*/

import java.util.Collections;
import java.util.Set;

import javax.xml.namespace.QName;
import javax.xml.soap.SOAPElement;
import javax.xml.soap.SOAPEnvelope;
import javax.xml.soap.SOAPFactory;
import javax.xml.soap.SOAPHeader;
import javax.xml.soap.SOAPMessage;
import javax.xml.ws.handler.MessageContext;
import javax.xml.ws.handler.soap.SOAPHandler;
import javax.xml.ws.handler.soap.SOAPMessageContext;

/**
 * This is a SOAP handler that applies a security header and a language header to a SOAP message.
 */
public class SecurityHandler implements SOAPHandler<SOAPMessageContext>
{
    // WS-Security header values
    public static final String SECURITY = "Security";
    public static final String USERNAME_TOKEN = "UsernameToken";
    public static final String USERNAME = "Username";
    public static final String PASSWORD = "Password";
    public static final String WS_SECURITY_NAMESPACE =
        "http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd";

    // prefixes
```

```

public static final String WSSE_PREFIX = "wsse"; // ws service security
public static final String SPSS_PREFIX = "spss"; // spss prefix

// SPSS custom language header values
public static final String SPSS_HEADER_NAMESPACE = "http://xml.spss.com/ws/headers";
public static final String CLIENT_ACCEPT_LANGUAGE_HEADER = "client-accept-language";

private String i_username;
private String i_password;
private String i_acceptLanguage;

/**
 * Creates a security and language handler
 * @param username A user name to access the web service. Cannot be null.
 * @param password A password to access the web service. Cannot be null.
 * @param acceptLanguage The language that should be used by the web service.
 * This value should be formatted according to the HTTP specification regarding
 * the Accept-Language HTTP header (e.g. en-US;q=1.0, en;q=0.8)
 * If the value is null, the language header will not be added.
 */
public SecurityHandler(String username, String password, String acceptLanguage)
{
    i_username = username;
    i_password = password;
    i_acceptLanguage = acceptLanguage;
}

@Override
public boolean handleMessage(SOAPMessageContext context)
{
    // Apply this handler to only outbound traffic
    if((Boolean)context.get(SOAPMessageContext.MESSAGE_OUTBOUND_PROPERTY))
    {
        // get the message
        SOAPMessage message = context.getMessage();
        try
        {
            // get the message header
            SOAPEnvelope envelope = message.getSOAPPart().getEnvelope();
            SOAPHeader header = envelope.getHeader();
            if (header == null)
            {
                header = envelope.addHeader();
            }

            // add the UsernameToken header
            header.addChildElement(createUsernameTokenSecurityHeader());
            // assuming the language was provided, apply the custom language header
            if(i_acceptLanguage != null)
            {
                header.addChildElement(createLanguageHeader());
            }
        }
        catch (Exception e)
        {
            e.printStackTrace();
        }
    }
    // allow any other handler to execute
    return true;
}

/**
 * This method creates a custom language header, which allows the scoring service
 * to use the given language if possible.
 * @return A custom language header
 * @throws Exception
 */
private SOAPElement createLanguageHeader() throws Exception
{
    SOAPFactory factory = SOAPFactory.newInstance();

    // create a custom language header
    SOAPElement languageHeader =
        factory.createElement(CLIENT_ACCEPT_LANGUAGE_HEADER, SPSS_PREFIX, SPSS_HEADER_NAMESPACE);

    // include the language text
    languageHeader.addTextNode(i_acceptLanguage);

    return languageHeader;
}

/**
 * Creates the WS-Security SOAP header for UsernameToken as SOAPElement.

```

```

*
* @return the WS-Security SOAP header for UsernameToken
* @throws Exception as appropriate
*/
private SOAPElement createUsernameTokenSecurityHeader() throws Exception
{
    SOAPFactory factory = SOAPFactory.newInstance();

    // create a UsernameToken element
    SOAPElement usernameToken =
        factory.createElement(USER_NAME_TOKEN, WSSE_PREFIX, WS_SECURITY_NAMESPACE);

    // add the username element
    SOAPElement usernameElement =
        factory.createElement(USER_NAME, WSSE_PREFIX, WS_SECURITY_NAMESPACE);
    usernameElement.addTextNode(i_username);
    usernameToken.addChildElement(usernameElement);

    // add the password element
    SOAPElement passwordElement =
        factory.createElement(PASSWORD, WSSE_PREFIX, WS_SECURITY_NAMESPACE);
    passwordElement.addTextNode(i_password);
    usernameToken.addChildElement(passwordElement);

    // create the Security Header
    SOAPElement securityHeader =
        factory.createElement(SEcurity, WSSE_PREFIX, WS_SECURITY_NAMESPACE);
    securityHeader.addChildElement(usernameToken);

    return securityHeader;
}

@Override
public boolean handleFault(SOAPMessageContext context)
{
    // allow any other handler to execute
    return true;
}

@Override
public void close(MessageContext context)
{
    // do nothing
}

@Override
public Set<QName> getHeaders()
{
    return Collections.emptySet();
}
}

```

Exercising web services from JAX-WS clients

Once properly configured, a JAX-WS client can make calls to IBM SPSS Collaboration and Deployment Services web services.

For example, the following code calls the `getConfigurations` operation of the Scoring Service:

```
serviceEndpoint.getConfigurations();
```

Chapter 6. Microsoft® .NET Framework-based clients

In order to use the web services from a Microsoft Windows Communication Foundation (WCF) client, you will need Visual Studio 2008 or later. The discussion here assumes the use of Visual Studio 2008. In general, the process for accessing IBM SPSS Collaboration and Deployment Services web services involves the following steps:

1. Add a Service Reference. See the topic “Adding a service reference” for more information.
2. Configure the web service endpoint. See the topic “Configuring the web service endpoint” on page 132 for more information.
3. Programmatically configure the necessary endpoint behaviors. See the topic “Configuring endpoint behaviors” on page 133 for more information.
4. Exercise the web service. See the topic “Exercising the service” on page 133 for more information.

Adding a service reference

The first step in using a WCF client to access IBM SPSS Collaboration and Deployment Services web services is to make the service available to the Visual Studio project by adding it as a Service Reference.

1. In Visual Studio, right-click the folder’s *References* folder and select **Add Service Reference**.
2. Type the URL of the service WSDL location in the **Address** field, and click **Go**. The value corresponds to the service endpoint appended with `?wsdl`.
3. Specify the namespace in the **Namespace** field.
4. Click **OK**.

Visual Studio adds a new service reference to the Service Reference directory for the project. The name of the reference corresponds to the specified namespace.

Important: If you have a .NET client created by using a version of IBM SPSS Collaboration and Deployment Services before 6.0, you must regenerate your service references from the current WSDL files to allow successful communication between your application and the current server. If you do not regenerate your service references, you may experience a variety of errors that may include incorrect namespace assignments, `NullPointerExceptions` in the web services being invoked, and data type assignment errors.

Service reference modifications

Due to known compatibility issues between Microsoft tooling and some WSDL files, you need to manually modify some service references before they can be used successfully. For information about the specific issues, see articles 891386 and 326790 on the Microsoft Support site.

To modify a service reference:

1. In Visual Studio, select the project and click **Show All Files** from the Project menu.
2. Expand the service reference that needs to be modified.
3. Expand the **Reference.svcmap** node.
4. Open the `Reference.cs` file.
5. Make the required modifications.
6. Save the file.

For the Content Repository Service, Content Repository URI Service, and Process Management Service, you need to make the following changes to the `RowType` class:

- private value[][] cellField should be changed to private value[] cellField
- public value[][] cell should be changed to public value[] cell

For the Scoring Service, you need to make the following changes:

- in the returnedDPDOutputTable class, private returnedDPDOutputValue[][] returnedDPDOutputrowField should be changed to private returnedDPDOutputValue[] returnedDPDOutputrowField
- in the returnedDPDOutputTable class, private returnedDPDOutputValue[][] returnedDPDOutputRow should be changed to private returnedDPDOutputValue[] returnedDPDOutputRow
- in the returnedRequestInputTable class, private returnedRequestInputValue[][] returnedRequestInputRow should be changed to private returnedRequestInputValue[] returnedRequestInputRow
- in the returnedRequestInputTable class, private returnedRequestInputValue[][] returnedRequestInputRowField should be changed to private returnedRequestInputValue[] returnedRequestInputRowField
- in the requestInputTable class, private input1[][] requestInputRowField should be changed to private input1[] requestInputRowField
- in the requestInputTable class, private input1[][] requestInputRow should be changed to private input1[] requestInputRow

For the PevServices Service, you need to make the following changes:

- in the avTableConflict class, private avColumnMeta[][] avColumnConflictField should be changed to private avColumnMeta[] avColumnConflictField
- in the avTableConflict class, private avColumnMeta[][] avColumnConflict should be changed to private avColumnMeta[] avColumnConflict
- in the evTableConflict class, private evColumnMeta[][] evColumnConflictField should be changed to private evColumnMeta[] evColumnConflictField
- in the evTableConflict class, private evColumnMeta[][] evColumnConflict should be changed to private evColumnMeta[] evColumnConflict

Configuring the web service endpoint

In WCF, you can configure a service endpoint either declaratively using an *app.config* file, or programmatically using the WCF APIs. The following steps describe the creation of a basic configuration within an *app.config* file.

1. In Visual Studio, double-click the *app.config* file for the application (or *web.config* for a web-application).
2. Find the `system.serviceModel` element. Create it if it does not already exist.
3. Find the `client` element. Create it if it does not already exist.
4. Create a new endpoint element as a child of the `client` element.
5. Specify the appropriate service endpoint URL as the value of the *address* attribute.
6. Specify *basicHttpBinding* as the value of the *binding* attribute.
7. Specify the appropriate service contract as the value of the *contract* attribute. The service contract is the value of the service reference namespace appended with the service name.
8. Optionally specify a value for the *name* attribute that identifies a name for the endpoint configuration. If the *name* is blank, the configuration is used as the default for the service.

The resulting *app.config* file should be similar to the following example:

```
<system.serviceModel>
  <client>
    <endpoint
      address="http://cads_server:8080/cr-ws/services/ContentRepository"
```



```

        binding="basicHttpBinding"
        bindingConfiguration=""
        contract="IBM.SPSS.ContentRepository"
        name="" />
    </client>
</system.serviceModel>

```

Configuring endpoint behaviors

The following two issues complicate the use of IBM SPSS Collaboration and Deployment Services web services by WCF clients:

- WCF does not allow the username and password to be transmitted over HTTP
- WCF does not correctly understand the SOAP Fault format returned by the services

To address these problems, a sample Visual Studio project is available that contains classes adding endpoint behaviors that resolve both issues. The IBM SPSS Collaboration and Deployment Services installation media includes this project.

To use these classes, ensure that the *IBM.SPSS.WCF.Utilities* project containing these classes has been compiled and added as a referenced DLL to the Visual Studio project that exercises the web services. When constructing a new service client instance, ensure that the behaviors are added as follows:

```

ContentRepositoryClient serviceClient = new ContentRepositoryClient();
serviceClient.Endpoint.Behaviors.Add(
    new ApplyClientInspectorsBehavior(
        new HeaderInjectionMessageInspector(
            new UsernameTokenSecurityHeader("admin", "Abcdefg1")
        ),
        new SOAPFaultFormatMessageInspector())
);

```

This adds two message inspectors to the behaviors for the endpoint. The first allows message headers to be injected, permitting a UsernameToken security header containing the username and password to be transmitted over HTTP. The second message inspector intercepts SOAP Faults, ensuring that they are formatted for proper WCF processing.

Exercising the service

After adding the service reference to the project, configuring the endpoint, and adding the necessary endpoint behaviors, the WCF-based web service client is ready. Add the .NET source code to the project to exercise the web service as needed.

There may be instances in which the .NET client proxies are generated incorrectly, leading to unexpected missing results at runtime. If a web service call returns no results when results are expected, the generated .NET types associated with the request and response should be examined. Specifically, members of the types may have two .NET attributes assigned. The first, *MessageBodyMemberAttribute*, will often include the proper namespace for the member type. The second, *XmlElementAttribute*, should have the same namespace as *MessageBodyMemberAttribute*. If this is not the case, add the namespace to *XmlElementAttribute*. Moreover, the addition of XML serialization attributes, such as *System.Xml.Serialization.XmlElementAttribute*, may be necessary to correctly name the expected namespace or element. For example, the following generated client code would need to be modified:

```

public partial class getUsersResponse {
    System.ServiceModel.MessageBodyMemberAttribute(Namespace =
        "http://xml.spss.com/pes/userPref/remote", Order = 0)]
    public IBM.SPSS.ManagerUserPref.usersResponse usersResponse;
}

```

The corrected code is as follows:

```

public partial class getUsersResponse {
    [System.ServiceModel.MessageBodyMemberAttribute(Namespace =
        "http://xml.spss.com/pes/userPref/remote", Order = 0)]
    [System.Xml.Serialization.XmlElementAttribute(ElementName="usersRequestResponse")]
    public IBM.SPSS.ManagerUserPref.usersResponse usersResponse;
}

```

Single sign-on authentication

You can use single sign-on authentication for web service calls by obtaining a service ticket that you include in your SOAP requests.

The general process of using single sign-on authentication for WCF clients includes the following steps:

1. Obtain a ticket-grating ticket (TGT) using .NET or WCF code.
2. Send the TGT to the IBM SPSS Collaboration and Deployment Services Repository server using the SSO Authentication Service `getToken` operation to obtain a service ticket. This ensures that single sign-on authentication occurs on the repository server.
3. Send the service ticket in the SOAP header for all subsequent web services calls from your client application.

Chapter 7. Message header reference

The headers for the transport and packaging layers contain vital information for processing a web service call.

For IBM SPSS Collaboration and Deployment Services, the SOAP headers contain the security information under which the web service call is processed. In addition, the HTTP headers contain information about the client that initiated the web service request.

Security headers

Most IBM SPSS Collaboration and Deployment Services web service calls require security information in the request message.

In general, the structure of this content follows the WS-Security extension to the SOAP 1.1 standard. This documentation provides details on the XML elements and attributes that are recognized by IBM SPSS Collaboration and Deployment Services. Some of the elements and attributes are required, some are optional, and some are ignored. Refer to the following official specifications for details, but IBM SPSS Collaboration and Deployment Services requires some special values not referenced in the official specifications.

- <http://docs.oasis-open.org/wss/v1.1/wss-v1.1-spec-os-SOAPMessageSecurity.pdf>
- <http://docs.oasis-open.org/wss/v1.1/wss-v1.1-spec-os-UsernameTokenProfile.pdf>
- <http://docs.oasis-open.org/wss/v1.1/wss-v1.1-spec-os-KerberosTokenProfile.pdf>

The following table defines the values of namespaces that are used for the SOAP header elements.

Table 116. SOAP header namespaces

Namespace prefix	Namespace value
wsse	http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd
wsu	http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd
soapenv	http://schemas.xmlsoap.org/soap/envelope/
spsssec	http://xml.spss.com/security

Security element

The `wsse:Security` element is the main security header element included in a `soapenv:Header` element.

Table 117. Attributes of `wsse:Security`

Attribute	Description	Example
<code>soapenv:actor</code>	Targets a given endpoint along the message path. This value is ignored.	http://schemas.xmlsoap.org/soap/actor/next
<code>soapenv:mustUnderstand</code>	Clients can specify if the server must process this element. This value is ignored.	0

UsernameToken element

Use the `wsse:UsernameToken` element when a traditional user and password combination is required.

Table 118. Attributes of `wsse:UsernameToken`

Attribute	Description
<code>wsu:Id</code>	An optional string label for the security token. This value is ignored.

Table 119. Child elements of `wsse:UsernameToken`

Attribute	Description	Example
<code>wsse:Username</code>	The xml value represents the identity of the user.	<code>a_user</code>
<code>wsse:Password</code>	The attribute <code>Type</code> specifies the type of password. <code>PasswordText</code> is currently the only supported type. The xml value can handle plain text passwords and encrypted data.	<code>myPassword</code> <code>[{AES}KrY+KLIOYo4O6545tgGsYQ==]</code>
<code>wsse:Nonce</code>	The xml value represents a cryptographically random nonce encoded as base64 data. This is currently ignored.	<code>RUx1ugQo0o3g0Xyl+sUEsA==</code>
<code>wsu:Created</code>	The xml value represents the creation time as a timestamp conforming to <code>wsu:Timestamp</code> . This is currently ignored.	<code>2013-10-08T02:09:20Z</code>

BinarySecurityToken and BinarySecuritySSOToken elements

Binary security tokens may be used when IBM SPSS Collaboration and Deployment Services communicates with itself or when single sign-on (SSO) is used. Customer usage of these token types is limited to SSO.

The `wsse:BinarySecurityToken` and `wsse:BinarySecuritySSOToken` elements have the same format, but only `wsse:BinarySecurityToken` is recognized in the official WS-Security standard. The element `wsse:BinarySecuritySSOToken` was added as a nonstandard element when used in SSO.

Of these two elements, you should use `wsse:BinarySecurityToken` and you must supply the correct attributes for proper handling. The most critical attribute is the `wsu:Id` value which is used during web service request processing to handle the security token correctly.

Table 120. Attributes of `wsse:BinarySecurityToken`

Attribute	Description	Example
<code>ValueType</code>	Indicates the type of the security token. IBM SPSS Collaboration and Deployment Services always writes these values when creating its own XML, but this value is currently ignored during processing. You should use <code>spssec:BinarySecuritySSOToken</code> .	<code>spssec:BinarySecurityToken</code> <code>spssec:BinarySecuritySSOToken</code>

Table 120. Attributes of `wsse:BinarySecurityToken` (continued)

Attribute	Description	Example
EncodingType	Indicates the encoding type for the token. The only currently supported type is base64, so this value should always be <code>wsse:Base64Binary</code> . IBM SPSS Collaboration and Deployment Services always writes these values when creating its own XML, but this value is currently ignored during processing.	<code>wsse:Base64Binary</code>
<code>wsu:Id</code>	An identifier for the token. This value must be correctly provided. You should always provide <code>spssSSOToken</code> . The only valid case for using <code>spssToken</code> is for internal web service calls, which use an internal token format.	<code>spssToken</code> <code>spssSSOToken</code>
anyAttribute	An extension mechanism to allow any arbitrary attribute in other namespaces. These extensions are ignored.	

The XML value for `wsse:BinarySecurityToken` and `wsse:BinarySecuritySSOToken` is string data in base64 format.

The client-accept-language element

This element restricts the set of natural languages that are preferred as a response to the request.

This element is inserted into a `soapenv:Header` element and is not related to WS-Security in any way. This is the same value found in the HTTP header named `Accept-Language` as defined in RFC2068. The xml value for this element might look like the following:

```
en-US;q=1.0, en;q=0.8
```

The namespace for this element could be any allowed value, such as `ns1`, which has an associated value of `http://xml.spss.com/ws/headers`.

HTTP headers

In addition to SOAP headers, it is possible to apply HTTP headers as well. None of the HTTP headers is required.

Table 121. HTTP headers

HTTP header	Description
<code>Accept-Language</code>	The accept language header value, as defined in RFC2068 (e.g. <code>en-US;q=1.0, en;q=0.8</code>). If not supplied the server language setting is used as a default.
<code>CLIENT_ADDR</code>	The client IP address that ultimately initiated the request.
<code>CLIENT_HOSTNAME</code>	The client host name that ultimately initiated the request.
<code>X-FORWARDED-FOR</code>	The client IP address that ultimately initiated the request. This is standard for determining the originating IP address.

The `CLIENT_ADDR`, `CLIENT_HOSTNAME`, and `X-FORWARDED-FOR` values are useful when a client application makes a call through an HTTP proxy, load balancer, or when IBM SPSS Collaboration and Deployment Services components make internal calls. The `CLIENT_ADDR` and `CLIENT_HOSTNAME` entries are specific HTTP headers that can be set by IBM SPSS Collaboration and Deployment Services itself. The `X-FORWARDED-FOR` header is a standard that some load balancers understand. These headers are used to make a best-effort attempt in determining the originating client for a given call, allowing information to be used for auditing purposes. The headers may not work as intended, but IBM SPSS Collaboration and Deployment Services will fall back to reasonable defaults in those situations.

Appendix. Deprecated features

If you are migrating from an earlier release of IBM SPSS Collaboration and Deployment Services, you should be aware of the various features that have been deprecated since the last version.

If a feature is deprecated, IBM Corp. might remove this capability in a subsequent release of the product. Future investment will be focused on the strategic function listed under the recommended migration action. Typically, a feature is not deprecated unless an equivalent alternative is provided.

No features have been deprecated in this release. For reference purposes, the following table indicates features that were deprecated in recent previous versions of the product. Where possible, the table also indicates the recommended migration action.

Table 122. Features deprecated in previous versions

Deprecation	Recommended migration action
Security Provider: Active Directory with local override, which supports extended groups and allowed users	Use the standard Active Directory security provider with any necessary groups added
IBM SPSS Collaboration and Deployment Services Enterprise View	Use the Analytic Data View feature
IBM SPSS Collaboration and Deployment Services Enterprise View Driver	Use the Analytic Data View feature
Scenario files	Scenario files (.scn) are no longer supported. Enterprise View source nodes cannot be modified in Deployment Manager. Old scenario files can be modified in IBM SPSS Modeler client and resaved as stream files. Also, scoring configurations that used a scenario file must be deleted and recreated based on a stream file.
Web Install for IBM SPSS Deployment Manager	Use the standalone installer
BIRT Report Designer for IBM SPSS	None
BIRT Report Designer for IBM SPSS viewer	None
IBM SPSS Collaboration and Deployment Services Portlet	Use the IBM SPSS Collaboration and Deployment Services Deployment Portal directly, or use the web services APIs
IBM SPSS Collaboration and Deployment Services Web Part	Use the IBM SPSS Collaboration and Deployment Services Deployment Portal directly, or use the web services APIs
Scoring Service V1 API	Scoring Service V2 API
Scheduling Server Service	None
Reporting Service	None
Authentication Service login operation	Authentication Service doLogin operation
Search Service search operation	Search Service search2.5 operation
SPSS AXIS/Castor web services client jar	Use the tools provided with the Java Runtime Environment, Integrated Development Environment, or Eclipse Web Tools Platform (WTP)
clemrtl_setLogFile() API function	None

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Glossary

This glossary includes terms and definitions for IBM SPSS Collaboration and Deployment Services.

The following cross-references are used in this glossary:

- See refers you from a term to a preferred synonym, or from an acronym or abbreviation to the defined full form.
- See also refers you to a related or contrasting term.

To view glossaries for other IBM products, go to www.ibm.com/software/globalization/terminology (opens in new window).

A

access control list (ACL)

In computer security, a list associated with an object that identifies all the subjects that can access the object and their access rights.

ACL See access control list.

action A permission for an aspect of system functionality. For example, the ability to set up notifications is defined as an action. Actions are grouped and assigned to users through roles. See also role.

Active Directory (AD)

A hierarchical directory service that enables centralized, secure management of an entire network, which is a central component of the Microsoft Windows platform.

AD See Active Directory.

allowed user

A subset of the users defined in a remote directory, such as SiteMinder or Windows Active Directory, that are allowed access to SPSS Predictive Enterprise Services. Allowed users are defined when only a few users in a remote directory need access to the application.

API See application programming interface.

appender

A component that receives logging

requests from a logger and writes log statements to a specified file or console. See also logger.

application programming interface (API)

An interface that allows an application program that is written in a high-level language to use specific data or functions of the operating system or another program.

B

batch file

A file that contains instructions that are processed sequentially, as a unit.

binary large object (BLOB)

A data type whose value is a sequence of bytes that can range in size from 0 bytes to 2 gigabytes less 1 byte. This sequence does not have an associated code page and character set. BLOBs can contain, for example, image, audio, or video data.

BLOB See binary large object.

break group

A set of rows of returned data that are grouped according to a common column value. For example, in a column of states, the rows of data for each state are grouped together.

burst report

A report that generates multiple output files during a single run by using multiple input parameters taken from break groups in the report.

C

cascading permission

A permission of a parent folder in the content repository that has been propagated to its child objects.

character large object (CLOB)

A data type whose value is a sequence of characters (single byte, multibyte, or both) that can range in size from 0 bytes to 2 gigabytes less 1 byte. In general, the CLOB data type is used whenever a

character string might exceed the limits of the VARCHAR data type.

CLOB See character large object.

common warehouse metamodel (CWM)

A metamodel written to be a common standard by the Object Management Group (OMG).

content repository

A centralized location for storing analytical assets, such as models and data. Content repository includes facilities for security and access control, content management, and process automation.

context data

Input data that is passed with a scoring request in real time. For example, when a score is requested for a customer based on credit rating and geocode, the credit score and geocode will be the context data for the request.

credential

Information acquired during authentication that describes a user, group associations, or other security-related identity attributes, and that is used to perform services such as authorization, auditing, or delegation. For example, a user ID and password are credentials that allow access to network and system resources.

CWM See common warehouse metamodel.

D

data warehouse

A subject-oriented collection of data that is used to support strategic decision making. The warehouse is the central point of data integration for business intelligence. It is the source of data for data marts within an enterprise and delivers a common view of enterprise data.

distinguished name (DN)

The name that uniquely identifies an entry in a directory. A distinguished name is made up of attribute:value pairs, separated by commas. For example, CN=person name and C=country or region.

DN See distinguished name.

Document Object Model (DOM)

A system in which a structured document, for example an XML file, is viewed as a tree of objects that can be programmatically accessed and updated. See also Simple API for XML.

document type definition (DTD)

The rules that specify the structure for a particular class of SGML or XML documents. The DTD defines the structure with elements, attributes, and notations, and it establishes constraints for how each element, attribute, and notation can be used within the particular class of documents.

DOM See Document Object Model.

dormant schedule

A schedule associated with a deleted or unlabeled version of a job. A dormant schedule cannot be used until it is associated with a valid labeled job version.

DTD See document type definition.

E

EAR See enterprise archive.

enterprise archive (EAR)

A specialized type of JAR file, defined by the Java EE standard, used to deploy Java EE applications to Java EE application servers. An EAR file contains EJB components, a deployment descriptor, and web archive (WAR) files for individual web applications. See also Java archive, web archive.

execution server

A server that enables analytical processing of resources stored in the repository. For example, to execute an IBM SPSS Statistics syntax in an IBM SPSS Collaboration and Deployment Services job, an IBM SPSS Statistics execution server must be designated.

export The process of storing objects and metadata from the content repository to an external file.

extended group

A locally-defined group of remote users. Extended groups are defined when groups in the remote directory are not fine-grained enough.

Extensible Markup Language (XML)

A standard metalanguage for defining markup languages that is based on Standard Generalized Markup Language (SGML).

Extensible Stylesheet Language (XSL)

A language for specifying style sheets for XML documents. Extensible Stylesheet Language Transformation (XSLT) is used with XSL to describe how an XML document is transformed into another document.

F**field content assist**

A feature that provides predefined system and variable values for entry fields.

G**general job step**

A method for running native operating system commands and executable programs on a host or a remote process server. General jobs have access to files stored within the repository and on the file system and can be used to control the input/output of analytical processing.

I**import**

The process of adding objects and metadata defined in an external file generated by export, to the content repository.

iterative consumer reporting job step

A job step that is passed a set of input values generated by a preceding iterative producer reporting job step. The report in iterative consumer job step is executed for each tuple in the received data set.

iterative producer reporting job step

A job step that generates a set of values passed as input parameters to a following iterative consumer job step.

J

JAAS See Java Authentication and Authorization Service.

JAR See Java archive.

Java archive (JAR)

A compressed file format for storing all of the resources that are required to install and run a Java program in a single file. See also enterprise archive, web archive.

Java Authentication and Authorization Service (JAAS)

In Java EE technology, a standard API for performing security-based operations. Through JAAS, services can authenticate and authorize users while enabling the applications to remain independent from underlying technologies.

Java Generic Security Services (JGSS)

A specification that provides Java programs access to the services that include the signing and sealing of messages and a generic authentication mechanism.

Java Naming and Directory Interface (JNDI)

An extension to the Java platform that provides a standard interface for heterogeneous naming and directory services.

JGSS See Java Generic Security Services.

JNDI See Java Naming and Directory Interface.

job A mechanism for automating analytical processing. A job consists of job steps, executed sequentially or conditionally. Input parameters can be defined for a job. A job can be run on demand or triggered by time-based or message-based schedules, with records of job execution stored as job history.

job step

A discrete unit of processing in a job. Depending on the type, job steps can be run on the content repository host or specially defined execution or remote process servers. Objects stored in the repository or the file system can provide input for a job step, and job step output can be stored in the repository or written to the file system.

K

KDC See key distribution center.

Kerberos

A network authentication protocol that is based on symmetric key cryptography. Kerberos assigns a unique key, called a

ticket, to each user who logs on to the network. The ticket is embedded in messages that are sent over the network. The receiver of a message uses the ticket to authenticate the sender.

key distribution center (KDC)

A network service that provides tickets and temporary session keys. The KDC maintains a database of principals (users and services) and their associated secret keys. It is composed of the authentication server and the ticket granting ticket server.

keystore

In security, a file or a hardware cryptographic card where identities and private keys are stored, for authentication and encryption purposes. Some keystores also contain trusted or public keys.

L

LDAP See Lightweight Directory Access Protocol.

Lightweight Directory Access Protocol (LDAP)

An open protocol that uses TCP/IP to provide access to directories that support an X.500 model and that does not incur the resource requirements of the more complex X.500 Directory Access Protocol (DAP). For example, LDAP can be used to locate people, organizations, and other resources in an Internet or intranet directory.

lock The process by which integrity of data is ensured by preventing more than one user from accessing or changing the same data or object at the same time.

logger A component that prepares log statements to be written to console or log file. See also appender.

M

message-based schedule

A schedule that is used to trigger job execution by an event signalled by a Java Messaging Service (JMS) message. For example, when a job relies on the input from a third-party application, the application must send a JMS message when the input file is ready for processing.

metamodel

A model that defines the language for expressing a model.

meta-object

An instance of an XMI class as defined in the metamodel.

meta-object facility (MOF)

A generalized facility and repository for storing abstract information about concrete object systems; dealing mostly with construction, standardized by the Object Management Group (OMG).

MIME See Multipurpose Internet Mail Extensions.

MOF See meta-object facility.

Multipurpose Internet Mail Extensions (MIME)

An Internet standard that allows different forms of data, including video, audio, or binary data, to be attached to email without requiring translation into ASCII text.

N

notification

A mechanism that is used to generate email messages informing users of specific types of system events, such as changes to content repository objects and processing success and failure. Unlike subscriptions, notifications can be set up to send email to multiple users.

O

Object Management Group (OMG)

A non-profit consortium whose purpose is to promote object-oriented technology and the standardization of that technology. The Object Management Group was formed to help reduce the complexity, lower the costs, and hasten the introduction of new software applications.

ODS See Output Delivery System.

OMG See Object Management Group.

Output Delivery System (ODS)

A method of controlling the destination for output within SAS. ODS can route SAS output to a SAS data file, a text listing file, HTML files, and files optimized for high-resolution printing.

P

package

An installable unit of a software product. Software product packages are separately installable units that can operate independently from other packages of that software product.

principal

An entity that can communicate securely with another entity. A principal is identified by its associated security context, which defines its access rights.

R

remote process server

A remote system that is designated for running native operating system commands and executable programs.

repository content adapter

An optional software package that enables storing and processing content from other IBM SPSS applications, such as Statistics, Modeler, and Data Collection, as well as third parties.

repository database

A relational database that is used for storing content repository objects and metadata.

resource

A content repository object.

resource definition

A subset of content repository resources used to enable analytical processing, such as definitions of data sources, credentials, execution servers, and JMS message domains.

role

A set of permissions or access rights. See also action.

S

SAX See Simple API for XML.

schedule

A content repository object that triggers job execution.

scoring configuration

A configuration that defines model-specific settings for generating

real-time scores, such as input data, processing rules, outputs, logging, etc.

security provider

A system that performs user authentication. Users and groups can be defined locally (in which case, IBM SPSS Collaboration and Deployment Services itself is the security provider) or derived from a remote directory, such as Windows Active Directory or OpenLDAP.

service provider interface (SPI)

An API that supports replaceable components and can be implemented or extended by a third party.

SGML

See Standard Generalized Markup Language.

shell script

A program, or script, that is interpreted by the shell of an operating system.

Simple API for XML (SAX)

An event-driven, serial-access protocol for accessing XML documents, used. A Java-only API, SAX is used by most servlets and network programs to transmit and receive XML documents. See also Document Object Model.

single sign-on (SSO)

An authentication process in which a user can access more than one system or application by entering a single user ID and password.

SOAP A lightweight, XML-based protocol for exchanging information in a decentralized, distributed environment. SOAP can be used to query and return information and invoke services across the Internet.

SPI See service provider interface.

SSO See single sign-on.

Standard Generalized Markup Language (SGML)

A standard metalanguage for defining markup languages that is based on the ISO 8879 standard. SGML focuses on structuring information rather than presenting information; it separates the structure and content from the presentation. It also facilitates the interchange of documents across an electronic medium.

stop word

A word that is commonly used, such as "the," "an," or "and," that is ignored by a search application.

subscription

Email notices and Really Simple Syndication (RSS) feeds that repository users create to receive when the state of an asset changes.

T

TGT See ticket-granting ticket.

ticket-granting ticket (TGT)

A ticket that allows access to the ticket granting service on the key distribution center (KDC). Ticket granting tickets are passed to the principal by the KDC after the principal has completed a successful request. In a Windows 2000 environment, a user logs on to the network and the KDC will verify the principal's name and encrypted password and then send a ticket granting ticket to the user.

time-based schedule

A schedule that triggers job execution at a specified time or date. For example, a time-based schedule may run a job at 5:00 pm every Thursday.

U**Universally Unique Identifier (UUID)**

The 128-bit numeric identifier that is used to ensure that two components do not have the same identifier.

UUID See Universally Unique Identifier.

V**Velocity**

A Java-based template engine that provides a simple and powerful template language to reference objects defined in Java code. Velocity is an open source package directed by the Apache Project.

W

W3C See World Wide Web Consortium.

WAR See web archive.

web archive (WAR)

A compressed file format, defined by the Java EE standard, for storing all the resources required to install and run a web application in a single file. See also enterprise archive, Java archive.

Web Services Description Language (WSDL)

An XML-based specification for describing networked services as a set of endpoints operating on messages containing either document-oriented or procedure-oriented information.

World Wide Web Consortium (W3C)

An international industry consortium set up to develop common protocols to promote evolution and interoperability of the World Wide Web.

WSDL

See Web Services Description Language.

X

XMI See XML Metadata Interchange.

XML See Extensible Markup Language.

XML Metadata Interchange (XMI)

A model-driven XML integration framework for defining, interchanging, manipulating, and integrating XML data and objects. XMI-based standards are in use for integrating tools, repositories, applications, and data warehouses.

XSL See Extensible Stylesheet Language.

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