SAP BusinessObjects™

SAP Web Intelligence RESTful web service SDK User Guide

■ SAP BusinessObjects Business Intelligence platform 4.0 SP 5

SAP BusinessObjects

SAP

Contents

Introduction to Web Intelligence RESTful Web Service SDK

The Web Intelligence RESTful web service SDK is an API used for manipulating the following:

- manipulating Web Intelligence documents and reports
- retrieving data from a dataprovider
- retrieving a list of available universes and details of an universes
- scheduling documents

It cannot be used to edit/create SAP Web Intelligence documents.

The Web Intelligence RESTful web service SDK relies on the BI platform RESTful web services API for session management and repository access. Before starting with the Web Intelligence RESTful web service SDK, we strongly recommend that you to read the *Business Intelligence Platform RESTful Web Service Developer Guide* referenced below.

Related Topics

• http://help.sap.com/bobip#section6

1.1 Document History

The following table provides an overview of the most important document changes.

Version	Date	Description
SAP Web Intelligence RESTful web services SDK 4.0 Service Pack 5.	September, 2012	First release of this document.

Using the SAP Web Intelligence RESTful Web Service SDK

The SAP Web Intelligence RESTful web service SDK complies with the RESTful methodology. You can access the Web Intelligence RESTful web service SDK using any programming language that supports making HTTP requests.

The cURL tool has excellent support for HTTP requests, so samples (for Windows and UNIX) in this guide are provided using this tool. You can find more information about cURL at the link referenced below.

Related Topics
• http://curl.haxx.se/

2.1 Before You Begin

Before you begin, be sure that the WebApplicationContainerServer (WACS) server is started and enabled.

To start the server, launch the Central Management Console.

1. In the "Organize" part select **Servers**
2. Unfold the **Server Categories** folder and select **Core Services**.
3. Right-click MySIA.WebApplicationContainerServer->Start Server
4. Right-click MySIA.WebApplicationContainerServer->Enable Server

2.2 HTTP Status Errors

The table below lists the set of status codes that provide status for HTTP requests.

Table 2-1: HTTP standard error codes

Status code	Error	Description
200	Success	Successful request.
400	Bad request	The requested resource exists, but the request contains errors.
401	Failed to logon or invalid session	Logon failed. Check that the user name, password, and server name are correct.
403	Access denied	You do not have permission to operate on the requested resource. The current session may have expired. Log on to obtain a new session.
404	Service is not available	The requested service is not provided by the RESTful web service SDK.
405	Invalid request method	A request was made using a method that was not supported by the resource. For example, using a `PUT` request on a read-only resource.
406	Not acceptable	The requested resource cannot generate the content type specified by the `Accept` attribute of the request header.
408	BI platform server timeout	The server timed out waiting for the request.
415	Unsupported media type	The request contains a media type that the server or resource does not support.

Status code	Error	Description
500	RESTful web service internal error	An unclassified error occurred. See the response body for more information.
503	RESTful web service plugin not found	RESTful web services are not available. Verify that RESTful web services are configured correctly.

2.3 To Activate Trace Log

To get details of the returned error:

1. Launch the "Central Management Console."
2. Select "Servers"
3. Expand "Service Categories" and select "Core Services" folder
4. Right-click the WACS (MySIA.WebApplicationContainerServer) server to get properties.
5. Check **Show Error Stack** in the "RESTful Web Service information."

2.4 Retrieving URL for Web Intelligence RESTful Web Service Request

To use the Web Intelligence RESTful web service SDK you must know the protocol, server name, port number and path of the service that listens to RESTful web service requests.

By default, the URL is the following:

```
http://<serverName>:6405/biprws/raylight/vx
```

Note:
`vx` corresponds to the version. For this release it is `v1`.

API Reference

This chapter lists the set of URLs of Web Intelligence RESTful web services plus the URL used to log onto the BI platform.

URLs are organized by category:

*   Logon and logoff to the BI platform
*   Document management
*   Document Life Cycle Management
*   Report management
*   DataProvider access
*   Scheduling
*   Refresh document
*   Universe Management

Note:
Refer to *BI platform RESTful Web Service Developer Guide* at the link below for more information on the platform services.

Related Topics
*   http://help.sap.com/bobip#section6
*   Logon & Logoff to the BI platform
*   Document Management
*   Document Life Cycle Management
*   Report Management
*   Data Provider Access
*   Scheduling Documents
*   Refresh Document
*   Universe Management

3.1 Logon & Logoff to the BI platform

Using the `GET` method, retrieve an XML template to log onto the BI platform with user name, password, and authentification mode, then use the `POST` method to log on and obtain a logon token.

Log off by invalidating the logon token.

These features are developed by the BI platform and fully described in the *Business Intelligence Platform RESTFful Web Service Developer Guide* at the link referenced below.

The default URL to request the BI platform web services is the following:

```
http://<serverName>:6405/biprws/
```

Related Topics
- http://help.sap.com/bobip#section6
- /logon/long
- /logoff

3.1.1 /logon/long

This section explains BI platform logon briefly.

For a more complete explanation, refer to *BI platform RESTful Web Service Developer Guide* at the link referenced at the end of the section.

To retrieve an XML template

The XML template that you retrieve is used for the body of the POST request described further on.

Request:

```
GET http://<serverName>:6405>/biprws/logon/long
```

Header	Value
Accept	application/xml or application/json

Body
None

Response:

Header	Value
Status Code	HTTP response code

Header	Value
Server	Type of server
Date	Date and time of response
Content-Type	Type of content in the response body
Content-Length	Length of content in the response body

Body
A template to use to populate the POST request

Example:

Windows

```
curl -G http://<serverName>:6405/biprws/logon/long -H accept="application/xml"
```

UNIX

```
./curl.exe -G http://<serverName>:6405/biprws/logon/long -H accept="application/xml"
```

Response

```
<attrs xmlns="http://www.sap.com/rws/bip">
  <attr name="userName" type="string">
  </attr>
  <attr name="password" type="string">
  </attr>
  <attr name="auth" type="string" possibilities="secEnterprise,secLDAP,secWinAD,secSAPR3">secEnterprise
  </attr>
</attrs>
```

To receive a logon token providing user name and password

Use the XML template retrieved by the GET request described above.

Request:

POST http://<serverName>:6405/biprws/logon/long

Header	Value
Content-Type	application/xml or application/json

Header	Value
Accept	`application/xml` or `application/json`

Body	Description

XML
 	
`<attr name="userName" type="string"/></attr>`
`  <attr name="pass" type="string"></attr>`
` <attr name="auth" type="string"></attr>`
 	
Json
 	
`{"userName":username;"password":password;"auth":secEnterprise}`
	To define the user name, password and type of authentication.
	
	Authentication can be: `secEnterprise`, `secLDAP`, `secWinAD` or `secSAPR3`

Response:

Header	Value
Status Code	HTTP response code
`Server`	Type of server
`X-SAP-LogonToken`	A logon token. The SAP logon is in quotation marks. `X-SAP-LogonToken:"tokenValue"`
`Date`	Date and time of the response
`Content-Type`	Type of content in the response body

Body	Description
`<attr name="logonToken" type="string">`	Contains a copy of the logon token. The logon token must be converted from XML-encoded format to its original format before it can be used

Example: Login

Note:

Credentials are specified in the `login.xml` file called by "@login.xml" in cURL command.

`login.xml` details.

```
<attrs>
  <attr name="userName" type="string">Administrator</attr>
  <attr name="password" type="string">Password</attr>
  <attr name="auth" type="string">secEnterprise</attr>
</attrs>
```

Windows

```
curl -i -X "POST" -H "content-type: application/xml" -H "accept: application/xml" -d "@login.xml"
http://<serverName>:6405/biprws/logon/long
```

Note:

Once you get the `X-SAP-LogonToken`, you can use it through a variable. Copy the token value, in command line type: `Set tokenValue=<pasted_value>` and use the variable in your cURL request as is: `%tokenValue%`

The following request export the X-SAP-LogonToken to `xsaplogontoken.txt` file.

```
curl -i -X "POST" -H "content-type: application/xml" -H "accept: application/xml" -d "@login.xml"
http://<serverName>:6405/biprws/logon/long | find "X-SAP-LogonToken: " > xsaplogontoken.txt
for /f "tokens=1,2 delims= " %a in (xsaplogontoken.txt) do @echo %b > xsaplogontoken.txt
```

UNIX

Note:

The `X-SAP-LogonToken` is exported in the `logtok` variable. This variable is used by all other URLs.

```
export logtok=`./curl.exe -i -X "POST" -H "content-type: application/xml" -H "accept: application/xml" -d
 "@login.xml" http://<serverName>:6405/biprws/logon/long | grep "X-SAP-LogonToken: " | awk '{print $2;}'`
```

Related Topics

• http://help.sap.com/bobip#section6

3.1.2 /logoff

To invalidate the logon token and log off the BI platform.

Request:

`POST http://<serverName>:6405/biprws/logoff`

Header	Value
Accept	application/xml

Header	Value
X-SAP-LogonToken	The logon token value, in quotation marks

Body
None

Response:

Header	Value
Status Code	HTTP response code
Server	Type of server
Date	Date and time of response
Content-Type	Type of content in the response body
Content-Length	Length of content in the response body

Body
None

Example:

Windows

```
curl -i -X "POST" -H "accept: application/xml" -H 'X-sap-logontoken:"<TokenValue>"' http://<server
Name>:6405/biprws/logoff
```

UNIX

Note:

Uses the `logtok` variable set at login.

```
./curl.exe -i -X "POST" -H "accept: application/xml" -H X-sap-logontoken:"$logtok" http://<server
Name>:6405/biprws/logoff
```

```
HTTP/1.1 200 OK
Server: Apache-Coyote/1.1
Date: Thu, 24 May 2012 14:41:20 GMT
Content-Type: text/xml
Content-Length: 0
```

Related Topics

• /logon/long

3.2 Document Management

The following are the main operations available to manage Web Intelligence documents:

* Retrieve document list from CMS
* Copy a document
* Get details on document such as creator name, document size, and so on. Details are retrieved using `ID`
* Export a document in listing or paginated mode

The default URL to request Web Intelligence Restful web services is the following:

```
http://<serverName>:6405/biprws/raylight/vx
```

Related Topics

• /documents
• /documents/{documentId} - Get Details of a Document and Export
• /documents/{documentId}/pages

3.2.1 /documents

This URL retrieves the document list from the CMS and makes a copy of a document.

To retrieve Web Intelligence document list from CMS

The document list is sorted by name. The list depends on user access rights.

Request:

```
GET http://<serverName>:6405/biprws/raylight/vx/documents
```

Header	Value
Accept	application/xml or application/json
X-SAP-LogonToken	Mandatory. The SAP logon token contained between quotation marks

Parameter	Description
limit	Optional. Default 10. Maximum 50. Number of documents to return
offset	Optional. Default 0. Indicator for the beginning of the list

Response:

The XML or Json flow that contains the document list.

Header	Value
Status Code	HTTP response code
Content-Type	application/xml or application/json
Content-Length	Length of content in the response body

Body (XML)

List of Web Intelligence documents sorted by name. The list depends on user access rights. For each document:

<id**>**: Document ID

<cuid**>**: Unique document ID

<name**>**: Document name

<folderId**>**: Folder ID

And the state of the document by Raylight:

<state**>**: State of document used by Raylight. Values can be: Unused, Original, and Modified.
- Unused means that the document has not been loaded by Raylight
- Original means that the document has been loaded by Raylight but not modified
- Modified means that the user sent Raylight requests which altered the state of the document.

Example: Retrieves one document from CMS

Windows

```
curl -G -i -H "accept:application/xml" -H X-SAP-LogonToken:"""<TokenValue>""" http://<server
Name>:6405/biprws/raylight/v1/documents?limit=1
```

UNIX

Note:

Uses the logtok variable set at login

```
./curl.exe -H "X-SAP-LogonToken:$logtok" http://<serverName>:6405/biprws/raylight/v1/documents?limit=1
```

Response

```
HTTP/1.1 200 OK
Server: Apache-Coyote/1.1
Date: Fri, 01 Jun 2012 09:49:52 GMT
Content-Type: application/xml
Content-Length: 217
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<documents>
    <document>
        <id>4990</id>
        <cuid>AW4AVT1AUhVAogA6P7OQv9c</cuid>
        <name>Charting Samples</name>
        <folderId>7544</folderId>
        <state>Original</state>
    </document>
</documents>
```

To copy a Web Intelligence document

Request:

```
POST http://<serverName>:6405/biprws/raylight/vx/documents?sourceId=<Web_In
telligence_document_id>
```

Header	Value
Accept	application/xml or application/json
Content-type	application/xml or application/json

Parameter	Description
sourceId	Mandatory. Integer. The identifier of the Web Intelligence document to copy.

Body (XML)	Description

`<document>`
`  <name> </name>`
`  <folderId> </folderId>`
`</document>`
	`<name>`: The name of the copied document in the BI Launch Pad folder
	
	`<folderId>`: The BI Launch Pad folder where the document is copied. By default: the folder of the original document.

Response:

Header	Value
Status Code	HTTP response code
Server	Type of server
Date	Date and time of the response
Content Type	application/xml or application/json
Content Length	Length of content in the response body

Body
In case of success, the message and the ID of the copied document in BI launch pad. Otherwise `<error> ... </error>`

Example: Copy document ID 4990

Note:

the name of the copied document is provided in the `copy.xml` file called by `-d "@copy.xml"` in cURL command. The copied document is assigned the ID 5875 and appears in the BI launch pad folder as: `Copy of 4990`.

`copy.xml` details

```
<document>
  <name>
    Copy of 4990
  </name>
</document>
```

Windows

```
curl -i -X "POST" -H "accept:application/xml" -H "content-type:application/xml" -H X-SAP-LogonToken:"""<To
kenValue>""" -d "@copy.xml" http://<serverName>:6405/biprws/raylight/v1/documents?sourceId=4990
```

UNIX

Note:

Uses the `logtok` variable set at login.

```
./curl.exe -i -X "POST" -H "accept:application/xml" -H "content-type:application/xml" -H X-SAP-LogonTo
ken:"$logtok" -d "@copy.xml" http://<serverName>:6405/biprws/raylight/v1/documents?sourceId=4990
```

Response

```
HTTP/1.1 200 OK
Server:Apache-Coyote/1.1
Date: Mon, 04 Jun 2012 11:59:02 GMT
Content-Type: application/xml
Content-Length: 204

<success>
<message>The resource of type 'document' with identifier '5875' has been successfully created.</message>
<id>5875</id>
</success>
```

Related Topics

• /logon/long
• /documents/{documentId} - Get Details of a Document and Export

3.2.2 /documents/{documentId} - Get Details of a Document and Export

Retrieves the details of a Web Intelligence document referenced by its ID.

It also exports document in various formats.

Format can be:

- XML
- PDF
- Excel 2003
- Excel 2007

It is also used to manage document life cycle (change the state, close, save, discard changes of a Web Intelligence document) using the PUT method. This feature is documented in the Life Cycle Management section. See the link referenced at the end of the section.

Retrieves the details of a Web Intelligence document

Request:

```
GET http://<serverName>:6405/biprws/raylight/vx/documents/{documentId}
```

Note:

`{documentId}`: The identifier of the Web Intelligence document retrieved in the document list by: `GET http://<serverName>:6405/biprws/raylight/vx/documents`

Header	Value
Accept	To retrieve the details of a document:`application/xml` or `application/json`
X-SAP-LogonToken	The logon token value, in quotation marks

Response:

Header	Value
Status Code	HTTP response code
Content-Type	`application/xml` or `application/json`
Content-Length	Length of content in the response body

> ## Body (XML)
>
> Details of the document identified by:
>
> `<id>`, `<cuid>`, `<name>`, `<folderId>`, `<path>`,   The last update date and time and `<scheduled>` false or true if the document has been scheduled.
>
> And document properties
>
> `<updated>` : The date and the time of the last update
>
> `<createdBy>`: The name of the document creator
>
> `<lastAuthor>`: The name of the last person who modified the document
>
> `<size>`: The size of the document
>
> `<refreshOnOpen>`: "`true`" If the document is set to be refreshed at the open time, otherwise "`false`"
>
> `<state>`: State of document used by Raylight.
>
> Values can be: `Unused`, `Original`, and `Modified`. `Unused` means that the document has not been loaded by Raylight. `Original` means that the document has been loaded by the web service but not modified. `Modified` means that the user sent requests which altered the state of the document.

Example: Details of document ID 8022

Windows

```
curl -G -i -H "accept:application/xml" -H X-SAP-LogonToken:"""<TokenValue>""" http://<server
Name>:6405/biprws/raylight/v1/documents/8022
```

UNIX

Note:

Uses the `logtok` variable set at login

```
./curl.exe -G -i -H "accept:application/xml" -H "X-SAP-LogonToken:$logtok" http://<serverName>:6405/biprws/ray
light/v1/documents/8022
```

Response

```
HTTP/1.1 200 OK
Server: Apache-Coyote/1.1
Date: Tue, 05 Jun 2012 08:10:36 GMT
Content-Type: application/xml
Content-Length: 355

<document>
  <id>8022</id>
  <cuid>AaLyrbU5tapPmFw93GP4Qr0</cuid>
  <name>_001_CrossTable</name>
  <folderId>7967</folderId>
  <path>My Favorites/Wid_Rendering/</path>
  <updated>2006-09-20+02:00</updated>
  <scheduled>false</scheduled>
```

```
   <state>Original</state>
   <createdBy>Administrator</createdBy>
   <lastAuthor>User1</lastAuthor>
   <size>421335</size>
   <refreshOnOpen>false</refreshOnOpen>
</document>
```

Exports Document

Exports document in the folllowing formats:

- XML
- PDF
- Excel 2003
- Excel 2007

Request:

```
GET http://<serverName>:6405/biprws/raylight/vx/documents/{documentId}[?pa
rameters] > <outputfilename>
```

Header	Value
Accept	`text/xml` or `application/pdf` or `application/vnd.ms-excel` (for Excel 2003) or `application/vnd.openxmlformats-office document.spreadsheetml.sheet` (for Excel 2007)
`X-SAP-LogonToken`	The logon token value, in quotation marks

Table 3-26: Export document: Optional parameter for all supported formats

Parameter	Description
`dpi`	Resolution in dots per inch (dpi) for generated charts (if any) . Max:9600. Min:75 Default:300 for PDF format, 96 for all other formats.

Table 3-27: Export Document: Optional Parameter for Excel 2003 and 2007

Parameter	Description
optimized	Boolean. Default: false the generated output is not optimized for calculations inside Excel. Otherwise, true.

Response:

Body
The exported file.

Example: Export document in XML format

Note:
Exports the XML result in the xmlfile.xml , with a resolution of 150 dpi for any generated charts.

Windows

```
curl -G -H "accept:text/xml" -H X-SAP-LogonToken:"""<tokenValue>""" http://<serverName>:6405/biprws/ray
light/v1/documents/8022?dpi=150 > xmlfile.xml
```

UNIX

Note:
Uses the logtok variable set at login

```
./curl.exe -G -H "accept:text/xml" -H X-SAP-LogonToken:"$logtok" http://<serverName>:6405/biprws/ray
light/v1/documents/8022?dpi=150 > xmlfile.xml
```

Example: Export document in PDF format

Exports the result with the file name exportpdf.pdf. The default resolution of 300 dpi for any generated charts is used.

Windows

```
curl -G -s -H "accept:application/pdf" -H X-SAP-LogonToken:"""<tokenValue>""" http://<server
Name>:6405/biprws/raylight/v1/documents/8022 > exportpdf.pdf
```

UNIX

Note:
Uses the logtok variable set at login

```
./curl.exe -G -s -H "accept:application/pdf" -H X-SAP-LogonToken:"$logtok" http://<serverName>:6405/biprws/ray
light/v1/documents/8022 > exportpdf.pdf
```

Example: Export document in Excel 2003 format

Exports the result with the file name `excel2003.xls` file. The output is optimized for calculations inside Excel, and any generated charts will have a resolution of 150 dpi.

Windows

```
curl -G -s -H "accept:application/vnd.ms-excel" -H X-SAP-LogonToken:"""<tokenValue>""" "http://<server
Name>:6405/biprws/raylight/v1/documents/8022?optimized=true&dpi=150" > excel2003.xls
```

UNIX

Note:

Uses the `logtok` variable set at login

```
./curl.exe -G -s -H "accept:application/vnd.ms-excel" -H X-SAP-LogonToken:"$logtok" "http://<server
Name>:6405/biprws/raylight/v1/documents/8022?optimized=true&dpi=150" > excel2003.xls
```

Example: Export document in Excel 2007 format

Exports the result in the `excel2007.xls` file. The output is optimized for calculations inside Excel.

Windows

```
curl -G -s -H "accept:application/vnd.openxmlformats-officedocument.spreadsheetml.sheet" -H X-SAP-LogonTo
ken:"""<tokenValue>""" http://<serverName>:6405/biprws/raylight/v1/documents/8022?optimized=true > ex
cel2007.xlsx
```

UNIX

Note:

Uses the `logtok` variable set at login

```
./curl.exe -G -s -H "accept:application/vnd.openxmlformats-officedocument.spreadsheetml.sheet" -H X-SAP-
LogonToken:"$logtok" http://<serverName>:6405/biprws/raylight/v1/documents/8022?optimized=true > excel2007.xl
sx
```

Related Topics

- /logon/long
- /documents
- /documents/{documentId}/pages
- /documents/{documentId} - Life Cycle Management

3.2.3 /documents/{documentId}/pages

Exports in paginated mode to various formats a Web Intelligence document referenced by its ID.

Format can be:

- XML
- PDF
- Excel 2003
- Excel 2007

Request:

```
GET http://<serverName>:6405/biprws/raylight/vx/documents/{documentId}/pages
```

Note:

{documentId}: The identifier of the Web Intelligence document retrieved in the document list by: `GET http://<serverName>:6405/biprws/raylight/vx/documents`

Header	Value
Accept	• `text/xml` • `application/pdf` • `application/vnd.ms-excel` (for Excel 2003) • `application/vnd.openxmlformats-officedocument.spreadsheetml.sheet` (for Excel 2007)
X-SAP-LogonToken	The logon token value, in quotation marks

Table 3-30: Optional parameters for all supported formats

Parameter	Description
dpi	Resolution in dots per inch (dpi) for generated charts (if any). Max:9600. Min:75 Default:300 for PDF format, 96 for all other formats
mode	`normal` or `quickDisplay`

Table 3-31: Optional Parameters mode=normal

Parameter	Description
orientation	Page orientation. Used to force a specific page orientation. Values: `portrait`, `landscape`

Parameter	Description
widthScaling	Number of pages per report displaying in width. Default:0 means no constraint in width.
heightScaling	Number of pages per report displaying in height. Default: 0 means no constraint in height.

Table 3-32: Export Document: Optional Parameter for Excel 2003 and 2007

Parameter	Description
optimized	Boolean. Default: false. Otherwise true, the generated output is then optimized for calculations inside Excel.

Example: Export document in XML (paginated mode)

Note:
Exports the XML result in xmlfile.xml

Windows

```
curl -G -s -H "accept:text/xml" -H X-SAP-LogonToken:"""<tokenValue>""" http://<serverName>:6405/biprws/ray
light/v1/documents/8022/pages > xmlfile.xml
```

UNIX

Note:
Uses the logtok variable set at login

```
./curl.exe -G -s -H "accept:text/xml" -H X-SAP-LogonToken:"$logtok" http://<serverName>:6405/biprws/ray
light/v1/documents/8022/pages > xmlfile.xml
```

Example: Export document in PDF (paginated mode)

Note:
Exports the PDF result in exportpdffile.pdf

Windows

```
curl -G -s -H "accept:application/pdf" -H X-SAP-LogonToken:"""<tokenValue>""" "http://<server
Name>:6405/biprws/raylight/v1/documents/8022/pages?mode=quickDisplay" > exportpdffile.pdf
```

UNIX

Note:

Uses the `logtok` variable set at login

```
./curl.exe -G -s -H "accept:application/pdf" -H X-SAP-LogonToken:"$logtok" "http://<server
Name>:6405/biprws/raylight/v1/documents/8022/pages?mode=quickDisplay" > exportpdffile.pdf
```

Example: Export document in Excel 2003 format (paginated mode)

Exports the result in `excel2003.xls` file.

Windows

```
curl -G -s -H "accept:application/vnd.ms-excel" -H X-SAP-LogonToken:"""<tokenValue>""" http://<server
Name>:6405/biprws/raylight/v1/documents/8022/pages?mode=normal > excel2003.xls
```

UNIX

Note:

Uses the `logtok` variable set at login

```
./curl.exe -G -s -H "accept:application/vnd.ms-excel" -H X-SAP-LogonToken:"$logtok" "http://<server
Name>:6405/biprws/raylight/v1/documents/8022/pages?mode=normal&orientation=landscape" > excel2003.xls
```

Example: Export document in Excel 2007 format (paginated mode)

Exports the result in `excel2007.xls` file.

Windows

```
curl -G -H "accept:application/vnd.openxmlformats-officedocument.spreadsheetml.sheet" -s -H X-SAP-LogonTo
ken:"""<tokenValue>""" "http://<serverName>:6405/biprws/raylight/v1/documents/8022/pages?optimized=true >
 excel2007.xlsx
```

UNIX

Note:

Uses the `logtok` variable set at login

```
./curl.exe -G -H "accept:application/vnd.openxmlformats-officedocument.spreadsheetml.sheet" -s -H X-SAP-
LogonToken:"$logtok" http://<serverName>:6405/biprws/raylight/v1/documents/8022/pages?optimized=true > ex
cel2007.xlsx
```

Related Topics

• /documents
• /logon/long

3.3 Document Life Cycle Management

The following are the main operations available to manage Web Intelligence life cycle documents. This feature is related to the state of a document which is retrieved by the following resource:

```
GET http://<serverName>:6405/biprws/raylight/vx/documents
```

The default URL to request Web Intelligence Restful web services is the following:

```
http://<serverName>:6405/biprws/raylight/vx
```

3.3.1 /documents/{documentId} - Life Cycle Management

This URL is used to manage Web Intelligence life cycle. It is used to change the state of a document in order to manage memory in the Web Intelligence RESTful web service container.

The state of a document is provided by the GET method. State can be: `Unused`, `Original` or `Modified`. This state corresponds to the state of a document in the Raylight container.

- An `Unused` document is a document that has not been loaded in the Raylight container.
- An `Original` document is a document that has been loaded in the Raylight container but not modified. Its state can be changed to `Unused` to free the Raylight memory, closing the document.
- A `Modified` document is a document that has been loaded and modified through Raylight. Its state can be changed to `Unused`, it is closed to free the Raylight memory.

Note:
As soon as you open a document its status becomes `Original`.

Request

```
PUT http://<serverName>:6405/biprws/raylight/vx/documents/{documentId}
```

Note:
`{documentId}`: The identifier of the Web Intelligence document retrieved in the document list by: `GET http://<serverName>:6405/biprws/raylight/vx/documents`

Header	Value
Accept	`application/xml` or `application/json`

Header	Value
`X-SAP-LogonToken`	The logon token value, in quotation marks

Body (XML)	Description

`<document>`
`    <state>Unused</state>`
`<document>`
	Optional.
	
	Used to change the state of an `Original` or a `Modified` document.
	
	An `Original` document changed to `Unused` is closed.
	
	A `Modified` document changed to `Unused` is closed.
	
	Note:
	To save a `Modified` document do not use any body in your request.

Empty body	Important: a `Modified` document can be saved only with a request that has no request body or an empty body. A request on an `Original` document with no body or an empty body, close the `Original` document.

Example: Close an unmodified document

Windows

```
curl -i -X "PUT" -H "accept:application/xml" -H "content-type:application/xml" -H X-SAP-LogonToken:"""<to
kenValue>""" http://<serverName>:6405/biprws/raylight/v1/documents/8009
```

UNIX

Note:
Uses the `logtok` variable set at login

```
./curl.exe -i -X "PUT" -H "accept:application/xml" -H "content-type:application/xml" -H X-SAP-LogonTo
ken:"$logtok" http://<servername>:6405/biprws/raylight/v1/documents/8009
```

Response

```
HTTP/1.1 200 OK
Server: Apache-Coyote/1.1
Date: Tue, 21 Aug 2012 08:35:08 GMT
Content-Type: application/xml
Content-Length: 196
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>

<success>
<message>The resource of type 'document' with identifier '8008' has not been modified.</message>
```

```
    <id>8008</id>
</success>
```

Example: Close an Original or a Modified document

Close and free the memory of the web service container.

Warning: modifications made on the Modified document are lost.

Note:

The `Unused` state is provided using the `UnusedState.xml` file called by `-d "@UnusedStated"` in cURL command.

`UnusedState.xml` details

```
<document>
 <state>Unused</state>
</document>
```

Windows

```
curl -i -X "PUT" -H "accept:application/xml" -H "content-type:application/xml" -d "@UnusedState.xml" -H X-
SAP-LogonToken:"""<tokenValue>""" http://<serverName>:6405/biprws/raylight/v1/documents/12192
```

UNIX

Note:

Uses the `logtok` variable set at login

```
./curl.exe -i -X "PUT" -H "accept:application/xml" -H "content-type:application/xml" -d "@UnusedState.xml"
 -H X-SAP-LogonToken:"$logtok" http://<serverName>:6405/biprws/raylight/v1/documents/12192
```

Example: Save a Modified document

Windows

```
curl -i -X "PUT" -H "accept:application/xml" -H "content-type:application/xml" -H X-SAP-LogonToken:"""<to
kenValue>""" http://<serverName>:6405/biprws/raylight/v1/documents/12192
```

UNIX

Note:

Uses the `logtok` variable set at login

```
./curl.exe -i -X "PUT" -H "accept:application/xml" -H "content-type:application/xml" -H X-SAP-LogonTo
ken:"$logtok" http://<serverName>:6405/biprws/raylight/v1/documents/12192
```

Related Topics

• /documents
• documents/{documentId}/parameters
• /documents/{documentId} - Get Details of a Document and Export

3.4 Report Management

This section describes the main operations available on reports:

*   How to get all the reports of a document
*   How to get details of a specific report
*   How to export a report

The default URL to request Web Intelligence Restful web services is the following:

```
http://<serverName>:6405/biprws/raylight/vx
```

Related Topics

• Document Management
• /documents/{documentId}/reports
• /documents/{documentId}/reports/{reportId}

3.4.1 /documents/{documentId}/reports

Retrieves all the reports of the document specified by the `documentId` URL's parameter.

Note:

`{documentId}`: The identifier of the Web Intelligence document retrieved in the document list by: `GET http://<serverName>:6405/biprws/raylight/vx/documents`. See the link referenced below.

Request:

```
GET http://<serverName>:6405/biprws/raylight/vx/documents/{documentId}/reports
```

Header	Value
Accept	`application/xml` or `application/json`
X-SAP-LogonToken	The logon token value, in quotation marks

Response:

Header	Value
Status Code	HTTP response code.
Content-Type	`application/xml` or `application/json`
Content-Length	Length of content in the response body

Body (XML)
Provides per report: the `id`, the `name`, the `reference`

Example: **Retrieves reports of document**

Note:

Retrieves reports of the document ID=12782.

Windows

```
curl -G -i -H "accept:application/xml" -H X-SAP-LogonToken:"""<TokenValue>""" http://<server
Name>:6405/biprws/raylight/v1/documents/12782/reports
```

UNIX

Note:

Uses the `logtok` variable set at login.

```
./curl.exe -G -i -H "accept:application/xml" -H "X-SAP-LogonToken:$logtok" http://<serverName>:6405/biprws/ray
light/v1/documents/12782/reports
```

Response

```
HTTP/1.1 200 OK
Server: Apache-Coyote/1.1
Date: Tue, 05 Jun 2012 12:06:42 GMT
Content-Type: application/xml
Content-Length: 544

<reports>
  <report>
   <id>3</id>
   <name>Global Revenues</name>
   <reference>3.RS</reference>
</report>
<report>
    <id>1</id>
    <name>Revenue by City</name>
    <reference>1.RS</reference>
</report>
<report>
    <id>4</id>
    <name>Sales in 2006</name>
    <reference>4.RS</reference>
</report>
<report>
 ...
```

```
</report>
<reports>
```

Related Topics

• /documents/{documentId} - Get Details of a Document and Export

3.4.2 /documents/{documentId}/reports/{reportId}

Retrieves details of the report specified by the `reportId` parameter.

It is also used to export report in listing mode and various formats. Format can be:
• HTML
• XML
• PDF
• Excel 2003
• Excel 2007

Note:
`{documentId}`: The identifier of the Web Intelligence document is retrieved in the document list by:
`GET http://<serverName>:6405/biprws/raylight/vx/documents`

Note:
`{reportId}`: The identifier of the report retrieved by:`GET http://<server Name>:6405/biprws/raylight/vx/documents/{documentId}/reports`

Request:

`GET http://<serverName>:6405/biprws/raylight/vx/documents/{documentId}/reports/{reportId}`

Retrieves details of a report

Request:

Header	Value
Accept	application/xml or application/json
X-SAP-LogonToken	The logon token value, in quotation marks

Header	Value
Status Code	HTTP response code
Content-Type	application/xml or application/json
Content-Length	Length of content in the response body

Body (XML)
Details of the report specified by reportId URL parameter: the id, the name, the reference

Example: Retrieves details of the report

Note:

Retrieve details of the report (ID 3) from the document (ID 7858)

Windows

```
curl -G -i -H "accept:application/xml" -H X-SAP-LogonToken:"""<tokenValue>""" http://<server
Name>:6405/biprws/raylight/v1/documents/7858/reports/3
```

UNIX

Note:

Uses the logtok variable set at login

```
./curl.exe -G -i -H "accept:application/xml" -H X-SAP-LogonToken:"$logtok" http://<serverName>:6405/biprws/ray
light/v1/documents/7858/reports/3
```

Response

```
HTTP/1.1 200 OK
Server: Apache-Coyote/1.1
Date: Tue, 05 Jun 2012 14:24:12 GMT
Content-Type: application/xml
Content-Length: 167

<report>
  <id>3</id>
  <name>Comp 1 Period Detail Report</name>
  <reference>3.RS</reference>
</report>
```

Exports report

Request:

Header	Value
Accept	`text/xml` `text/html` or `application/pdf` or `application/vnd.ms-excel` (for Excel 2003) or `application/vnd.openxmlformats-officedocument.spreadsheetml.sheet` (for Excel 2007)
X-SAP-LogonToken	The logon token value, in quotation marks

Table 3-43: Export report: Optional parameter for all supported formats

Parameter	Description
dpi	Resolution in dots per inch (dpi) for generated charts (if any) Max:9600. Min:75 Default:300 for PDF format, 96 for all other formats

Table 3-44: Export Report: Optional Parameter for the HTML Output

Parameter	Description
chartOutputFormat	Output format for generated chart. Values: `jpeg, bmp, gif, png` Default=`png` **Note:** in HTML format, image link is generated by the web service, so, the X-SAP-LogonToken must still be valid to get image from the generated link.

Table 3-45: Export Report: Optional Parameter for Excel 2003 and 2007

Parameter	Description
`optimized`	Boolean. Default: `false`. Otherwise `true` the generated output is then optimized for calculations inside Excel.

Result:

Header	Value
Status Code	HTTP response code
`Content-Type`	`text/xml` `text/html` or `application/pdf` or `application/vnd.ms-excel` (for Excel 2003) or `application/vnd.openxmlformats-officedocument.spreadsheetml.sheet` (for Excel 2007)
`Content-Length`	Length of content in the response body

Body
The result of the exported report in specified format.

Example: Export report in HTML format

Note:

Exports the report in the `exportedreport.htm` file.

Windows

```
curl -G -s -H "accept:text/html" -H X-SAP-LogonToken:"""<tokenValue>""" http://<serverName>:6405/biprws/raylight/v1/documents/9512/reports/67 > exportedreport.htm
```

UNIX

Note:

Uses the `logtok` variable set at login

```
./curl.exe -G -s -H "accept:text/html" -H "X-SAP-LogonToken:$logtok" http://<serverName>:6405/biprws/ray
light/v1/documents/9512/reports/67 >exportedreport.xml
```

Example: Export report in XML format

Note:

Exports the report in the `exportedreport.xml` file.

Windows

```
curl -G -s -H "accept:text/xml" -H X-SAP-LogonToken:"""<tokenValue>""" http://<serverName>:6405/biprws/ray
light/v1/documents/9512/reports/67 > exportedreport.htm
```

UNIX

Note:

Uses the `logtok` variable set at login

```
./curl.exe -G -s -H "accept:text/xml" -H "X-SAP-LogonToken:$logtok" http://<serverName>:6405/biprws/ray
light/v1/documents/9512/reports/67 > exportedreport.xml
```

Example: Export report in PDF format

Note:

Exports the report in the `exportedreport.pdf` file.

Windows

```
curl -G -s -H "accept:application/pdf" -H X-SAP-LogonToken:"""%tokenValue%""" http://%server
Name%:6405/biprws/raylight/v1/documents/9512/reports/67 > exportedreport.pdf
```

UNIX

Note:

Uses the `logtok` variable set at login

```
./curl.exe -G -s -H "accept:application/pdf" -H "X-SAP-LogonToken:$logtok" http://<serverName>:6405/biprws/ray
light/v1/documents/9512/reports/67 > exportedreport.pdf
```

Example: Export report in Excel 2003 format

Note:

Exports the report in the `exportedreport03.xls` file.

Windows

```
curl -G -s -H "accept:application/vnd.ms-excel" -H X-SAP-LogonToken:"""%tokenValue%""" http://%server
Name%:6405/biprws/raylight/v1/documents/9512/reports/67 > exportedreport03.xls
```

UNIX

Note:

Uses the `logtok` variable set at login

```
./curl.exe -G -s -H "accept:application/vnd.ms-excel" -H "X-SAP-LogonToken:$logtok" http://<server
Name>:6405/biprws/raylight/v1/documents/9512/reports/67 > exportedreport03.xls
```

Example: Export report in Excel 2007 format

Note:

Exports the report in the `exportedreport07.xlsx` file.

Windows

```
curl -G -s -H "accept:application/vnd.openxmlformats-officedocument.spreadsheetml.sheet" -H X-SAP-LogonTo
ken:"""<tokenValue>""" http://<serverName>:6405/biprws/raylight/v1/documents/9512/reports/67 > exporte
dreport07.xlsx
```

UNIX

Note:

Uses the `logtok` variable set at login

```
./curl.exe -G -s -H "accept:application/vnd.openxmlformats-officedocument.spreadsheetml.sheet" -H "X-SAP-
LogonToken:$logtok" http://<serverName>:6405/biprws/raylight/v1/documents/9512/reports/67 > exporte
dreport07.xlsx
```

Related Topics

- /documents
- /documents/{documentId} - Get Details of a Document and Export
- /documents/{documentId}/reports
- /logon/long

3.4.3 /documents/{documentId}/reports/{reportId}/pages

Exports in paginated mode to various formats a report of a Web Intelligence document. The first page of a Web Intelligence document begins to 0. The 404 error message "Not found" is returned after retrieving the last report page.

Format can be:

- HTML
- XML
- PDF
- Excel 2003
- Excel 2007

Request:

```
GET http://<serverName>:6405/biprws/raylight/vx/documents/{documentId}/re
ports/{reportId}/pages
```

Note:

- `{documentId}`: The identifier of the Web Intelligence document is retrieved in the documents list by: `GET http://<serverName>:6405/biprws/raylight/vx/documents`
- `{reportId}`: The identifier of the report retrieved by: `GET http://<server Name>:6405/biprws/raylight/vx/documents/{documentId}/reports`

Header	Value
`Accept`	`text/html` or `text/xml` or `application/pdf` or `application/vnd.ms-excel` (for Excel 2003) or `application/vnd.openxmlformats-officedocument.spread sheetml.sheet` (for Excel 2007)
`X-SAP-LogonToken`	The logon token value, in quotation marks.

Table 3-49: Optional parameter for all supported formats

Parameter	Description
`dpi`	Resolution in dots per inch (dpi) for generated charts (if any). Max:9600. Min:75 Default:300 for PDF format, 96 for all other formats
`mode`	`normal` or `quickDisplay`

Table 3-50: Optional Parameters mode=normal

Parameter	Description
orientation	Page orientation. Use to force a specific page orientation. Values: portrait, landscape
widthScaling	Number of pages per report displaying in width. Default:0 means no constraint in width.
heightScaling	Number of pages per report displaying in height. Default: 0 means no constraint in height.

Table 3-51: Optional Parameter for Excel 2003 and 2007

Parameter	Description
optimized	Boolean. Default: false. Otherwisetrue the generated output is then optimized for calculations inside Excel.

Table 3-52: Optional Parameter for the HTML Output

Parameter	Description
chartOutputFormat	Output format for chart. Values: jpeg, bmp, gif, png Default=png **Note:** in HTML format, image link is generated by the web service, so, the X-SAP-LogonToken must still be valid to get image from the generated link.

Example: Export a report in HTML (paginated mode)

Windows

```
curl.exe -G -s -H "accept:text/html" -H X-SAP-LogonToken:"""<tokenValue>""" http://<server
Name>:6405/biprws/raylight/v1/documents/9227/reports/1/pages > wpagehtm.htm
```

UNIX

Note:

Uses the `logtok` variable set at login

```
./curl.exe -G -s -H "accept:text/html" -H "X-SAP-LogonToken:$logtok" http://<serverName>:6405/biprws/ray
light/v1/documents/9227/reports/1/pages > pagehtm.htm
```

Example: Export a report in XML (paginated mode)

Windows

```
curl.exe -G -s -H "accept:text/xml" -H X-SAP-LogonToken:"""<tokenValue>""" http://<serverName>:6405/biprws/ray
light/v1/documents/9227/reports/1/pages > wpagexml.xml
```

UNIX

Note:

Uses the `logtok` variable set at login

```
./curl.exe -G -s -H "accept:text/xml" -H "X-SAP-LogonToken:$logtok" http://<serverName>:6405/biprws/ray
light/v1/documents/9227/reports/1/pages > pagexml.xml
```

Example: Export a report in PDF (paginated mode)

Windows

```
curl.exe -G -s -H "accept:application/pdf" -H X-SAP-LogonToken:"""<tokenValue>""" http://<server
Name>:6405/biprws/raylight/v1/documents/9227/reports/1/pages > wpagepdf.pdf
```

UNIX

Note:

Uses the `logtok` variable set at login

```
./curl.exe -G -s -H "accept:application/pdf" -H "X-SAP-LogonToken:$logtok" http://<serverName>:6405/biprws/ray
light/v1/documents/9227/reports/1/pages > pagepdf.pdf
```

Example: Export a report in Excel 2003 (paginated mode)

Windows

```
curl.exe -G -s -H "accept:application/vnd.ms-excel" -H X-SAP-LogonToken:"""<tokenValue>""" http://<server
Name>:6405/biprws/raylight/v1/documents/9227/reports/1/pages > wpage2003.xls
```

UNIX

Note:

Uses the `logtok` variable set at login

```
./curl.exe -G -s -H "accept:application/vnd.ms-excel" -H "X-SAP-LogonToken:$logtok" http://<server
Name>:6405/biprws/raylight/v1/documents/9227/reports/1/pages > page2003.xls
```

Example: Export a report in Excel 2007 (paginated mode)

Windows

```
curl.exe -G -s -H "accept:application/vnd.openxmlformats-officedocument.spreadsheetml.sheet" -H X-SAP-Lo
gonToken:"""<tokenValue>""" http://<serverName>:6405/biprws/raylight/v1/documents/9227/reports/1/pages >
wpage2007.xlsx
```

UNIX

```
./curl.exe -G -s -H "accept:application/vnd.openxmlformats-officedocument.spreadsheetml.sheet" -H "X-SAP-
LogonToken:$logtok" http://$serverName:6405/biprws/raylight/v1/documents/9227/reports/1/pages >
page2007.xlsx
```

Related Topics

• /documents
• /documents/{documentId}/reports
• /logon/long
• /documents/{documentId}/reports/{reportId}/pages/{pageIndex}

3.4.4 /documents/{documentId}/reports/{reportId}/pages/{pageIndex}

Exports to various format a report page. Format can be:

• HTML
• XML
• PDF
• Excel 2003
• Excel 2007

Request:

```
GET http://<serverName>:6405/biprws/raylight/vx/documents/{documentId}/re
ports/{reportId}/pages/{pageIndex}
```

Note:

• `{documentId}`: The identifier of the Web Intelligence document is retrieved in the documents list by: `GET http://<serverName>:6405/biprws/raylight/vx/documents`
• `{reportId}`: The identifier of the report retrieved by: `GET http://<server Name>:6405/biprws/raylight/vx/documents/{documentId}/reports`
• `{pageIndex}`: The page number. It begins to 0 and while the number of report pages is not known in advance, you have to use this url in a loop which returns the 404 error message "Not Found" after the last found page.

Header	Value
Accept	`text/html` or `text/xml` or `application/pdf` or `application/vnd.ms-excel` (for Excel 2003) or `application/vnd.openxmlformats-officedocument.spreadsheetml.sheet` (for Excel 2007)
X-SAP-LogonToken	The logon token value, in quotation marks

Table 3-54: Optional parameter for all supported formats

Parameter	Description
dpi	Resolution in dots per inch (dpi) for generated charts (if any). Max:9600. Min:75 Default:300 for PDF format, 96 for all other formats.
mode	`normal` or `quickDisplay`

Table 3-55: Optional Parameters mode=normal

Parameter	Description
orientation	Page orientation. Used to force a specific page orientation. Values: `portrait`, `landscape`
widthScaling	Number of pages per report displaying in width. Default: 0 means no constraint in width.
heightScaling	Number of pages per report displaying in height. Default: 0 means no constraint in height.

Table 3-56: Optional Parameter for the HTML Output

Parameter	Description
chartOutputFormat	Output format for generated chart (if any). Values: jpeg, bmp, gif, png Default=png **Note:** in HTML format, image link is generated by the web service, so, the X-SAP-LogonToken must still be valid to get image from the generated link.

Table 3-57: Optional Parameter for Excel 2003 and 2007

Parameter	Description
optimized	Boolean. Default: false. Otherwise true the generated output is then optimized for calculations inside Excel.

Example: Exports the report page 1 in XML format

Note:
Exports the first report page in the page1.xml file.

Windows

```
curl -H "accept:text/xml" -H X-SAP-LogonToken:"""<tokenValue>""" http://<serverName>:6405/biprws/ray
light/v1/documents/9646/reports/479/pages/0 >page1.xml
```

UNIX

Note:
Uses the logtok variable set at login

```
./curl.exe -H "accept:text/xml" -H "X-SAP-LogonToken:$logtok" http://<serverName>:6405/biprws/raylight/v1/doc
uments/9646/reports/479/pages/0 >page1.xml
```

Example: Exports the report page 2 in PDF format

Note:
Exports the report page 2 in the page2.pdf file.

Windows

```
curl -H "accept:application/pdf" -H X-SAP-LogonToken:"""<tokenValue>""" http://<serverName>:6405/biprws/ray
light/v1/documents/9646/reports/479/pages/1 >page2.pdf
```

UNIX

Note:

Uses the `logtok` variable set at login

```
./curl.exe -H "accept:application/pdf" -H "X-SAP-LogonToken:$logtok" http://<serverName>:6405/biprws/ray
light/v1/documents/9646/reports/479/pages/1 >page2.pdf
```

Example: Exports the report page 3 in Excel 2003 format

Note:

Exports the report page 3 in the `page3.xls` file.

Windows

```
curl -H "accept:application/vnd.ms-excel" -H X-SAP-LogonToken:"""<tokenValue>""" http://<server
Name>:6405/biprws/raylight/v1/documents/9646/reports/479/pages/2 >page3.xls
```

UNIX

Note:

Uses the `logtok` variable set at login

```
./curl.exe -H "accept:application/vnd.ms-excel" -H "X-SAP-LogonToken:$logtok" http://<server
Name>:6405/biprws/raylight/v1/documents/9646/reports/479/pages/2 >page3.xls
```

Example: Exports the report page 1 in Excel 2007

Note:

Exports the first report page in the `page1.xlsx` file.

Windows

```
curl -H "accept:application/vnd.openxmlformats-officedocument.spreadsheetml.sheet" -H X-SAP-LogonToken:"""<to
kenValue>""" http://<serverName>:6405/biprws/raylight/v1/documents/9646/reports/479/pages/0 >page1.xlsx
```

UNIX

Note:

Uses the `logtok` variable set at login

```
./curl.exe -H "accept:application/vnd.openxmlformats-officedocument.spreadsheetml.sheet" -H "X-SAP-LogonTo
ken:$logtok" http://<serverName>:6405/biprws/raylight/v1/documents/9646/reports/479/pages/0 >page1.xlsx
```

Related Topics

• /documents/{documentId}/reports/{reportId}/pages
• /documents
• /documents/{documentId}/reports
• /logon/long

3.5 Data Provider Access

This section describes the main operations available on the data provider:

- Retrieve the list of data providers for a given document
- Get details on a data provider
- Get the number of flows for a given data provider
- Get details on a flow for a given data provider.

The default URL to request Web Intelligence Restful web services is the following:

```
http://<serverName>:6405/biprws/raylight/vx
```

Related Topics

- /documents/{documentId}/dataproviders
- /documents/{documentId}/dataproviders/{dataproviderId}
- /documents/{documentId}/dataproviders/{dataproviderId}/flows/count
- /documents/{documentId}/dataproviders/{dataproviderId}/flows/{flowIndex}

3.5.1 /documents/{documentId}/dataproviders

Retrieves the list of data providers of the document specified by the `documentId` URL parameter.

Note:
`{documentId}`: The identifier of the Web Intelligence document is retrieved in the document list by:
`GET http://<serverName>:6405/biprws/raylight/vx/documents`

Request:

```
GET http://<serverName>:6405/biprws/raylight/vx/documents/{documentId}/dat
aproviders
```

Header	Value
Accept	application/xml or application/json
X-SAP-LogonToken	The logon token value, in quotation marks

Response:

Header	Value
Status Code	HTTP response code
Content-Type	`application/xml` or `application/json`
Content-Length	Length of content in the response body

Body (XML)
For each data provider:`id`, `name` and the date of the last update.

Example: **Retrieves dataproviders list of a document**

Note:

The document ID is 7738

Windows

```
curl -G -i -H "accept:application/xml" -H X-SAP-LogonToken:"""<TokenValue>""" http://<server
Name>:6405/biprws/raylight/v1/documents/7738/dataproviders
```

UNIX

Note:

Uses the `logtok` variable set at login.

```
./curl.exe -G -i -H "accept:application/xml" -H X-SAP-LogonToken:"$logtok" http://<serverName>:6405/biprws/ray
light/v1/documents/7738/dataproviders
```

Response

```
HTTP/1.1 200 OK
Server: Apache-Coyote/1.1
Date: Thu, 07 Jun 2012 08:23:37 GMT
Content-Type: application/xml
Content-Length: 217

<dataproviders>
 <dataprovider>
   <id>DP0</id>
   <name>Query 1</name>
   <updated>2006-09-20Z</updated>
 </dataprovider>
<dataprovider>
 ...
</dataprovider>
</dataproviders>
```

Related Topics

• /documents

• /logon/long

3.5.2 /documents/{documentId}/dataproviders/{dataproviderId}

Retrieves details of a data provider for a Web Intelligence document specified by the URL parameter `documentId`. It is also used to update the data provider for the Web Intelligence document referenced by its ID.

Note:

* `{documentId}`: The identifier of the Web Intelligence document retrieved in the document list by:
  `GET http://<serverName>:6405/biprws/raylight/vx/documents`
* `{dataproviderId}`: The identifier of the dataprovider available for a document is retrieved by:
  `GET http://<serverName>:6405/biprws/raylight/vx/documents/{documentId}/dat aproviders`

Retrieve details of a data provider

Request:

```
GET http://<serverName>:6405/biprws/raylight/vx/documents/{documentId}/dat
aproviders/{dataproviderId}
```

Header	Value
Accept	application/xml or application/json
X-SAP-LogonToken	The logon token value, in quotation marks

Response:

Header	Value
Status Code	HTTP response code.
Content-Type	application/xml or application/json
Content-Length	Length of content in the response body

Body (XML)

Details of the data provider:

`id`, `name`, the date and time of the last update, `ispartial`, the number of row and the objects dictionary. In `dictionary`, the object `id`, `type`, `name`, `description`, the data source object ID and the object qualification

Example: Retrieve dataprovider details

Note:

Retrieves details of the dataprovider ID DP0 available for the document ID 7738

Windows

```
curl -G -i -H "accept:application/xml" -H X-SAP-LogonToken:"""<TokenValue>""" http://<server
Name>:6405/biprws/raylight/v1/documents/7738/dataproviders/DP0
```

UNIX

Note:

Uses the `logtok` variable set at login.

```
./curl.exe -G -i -H "accept:application/xml" -H X-SAP-LogonToken:"$logtok" http://<serverName>:6405/biprws/ray
light/v1/documents/7738/dataproviders/DP0
```

Response

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<dataprovider>
    <id>DP0</id>
    <name>Query 1</name>
    <dataSourceId>0</dataSourceId>
    <updated>2012-07-31T15:44:25.000+02:00</updated>
    <duration>1</duration>
    <isPartial>false</isPartial>
    <rowCount>284</rowCount>
    <flowCount>1</flowCount>
    <dictionary>
      <expression qualification="Dimension" dataType="String">
          <id>DP0.DOa5</id>
          <name>Lines</name>
          <description>Product line. Each line contains a set of categories.</description>
          <dataSourceObjectId>DS0.DOa5</dataSourceObjectId>
      </expression>
      <expression qualification="Dimension" dataType="String">
          <id>DP0.DOda</id>
          <name>State</name>
          <description>State located.</description>
          <dataSourceObjectId>DS0.DOda</dataSourceObjectId>
      </expression>
      <expression qualification="Dimension" dataType="String">
          <id>DP0.DObc</id>
          <name>Year</name>
          <description>Year 1999 - 2001.</description>
          <dataSourceObjectId>DS0.DObc</dataSourceObjectId>
      </expression>
      <expression qualification="Measure" dataType="Numeric">
          <id>DP0.DO93</id>
          <name>Sales revenue</name>
          <description>Sales revenue $ - $ revenue of SKU sold</description>
          <dataSourceObjectId>DS0.DO93</dataSourceObjectId>
       </expression>
```

```
    </dictionary>
</dataprovider>
```

Update a data provider

This method is used to purge a data provider.

Request:

```
PUT http://<serverName>:6405/biprws/raylight/vx/documents/{documentId}/dat
aproviders/{dataproviderId}
```

Header	Value
Accept	application/xml or application/json
X-SAP-LogonToken	The logon token value, in quotation marks

Parameter	Description
purge	Optional. A boolean. Default: false. Indicates whether to purge the data provider or not.

Response

Body
Return a message that provides update status.

Example: Purge a data provider

Windows

```
curl - i -X "PUT" -H "accept:application/xml" -H X-SAP-LogonToken:"""<tokenValue>""" http://<server
Name>:6405/biprws/raylight/v1/documents/7738/dataproviders/DP0?purge=true
```

UNIX

Note:

Uses the logtok variable set at login

```
./curl.exe -X "PUT" -i -H "accept:application/xml" -H X-SAP-LogonToken:"$logtok" http://<server
Name>:6405/biprws/raylight/v1/documents/7738/dataproviders/DP0?purge=true
```

Related Topics

• /documents
• /logon/long

3.5.3 /documents/{documentId}/dataproviders/{dataproviderId}/flows/count

Retrieves the number of flows available for a data provider.

Request:

```
GET http://<serverName>:6405/biprws/raylight/vx/documents/{documentId}/dat
aproviders/{dataproviderId}/flows/count
```

- {documentId}: The identifier of the Web Intelligence document retrieved in the document list by:
  `GET http://<serverName>:6405/biprws/raylight/vx/documents`
- {dataproviderId}: The identifier of the dataprovider available for a document is retrieved by:
  `GET http://<serverName>:6405/biprws/raylight/vx/documents/{documentId}/dat
  aproviders`

Header	Value
Accept	text/plain
X-SAP-LogonToken	The logon token value, in quotation marks

Response:

Header	Value
Status Code	HTTP response code.
Content-Type	text/plain
Content-Length	Length of content in the response body

Body
The number of flows as an integer (from 1 to n).

Example: Retrieve the number of flow available for a dataprovider

Note:

Retrieves the number of flows of dataprovider ID DP0 available for the document ID 7738. Returns 1.

Windows

```
curl -G -i -H "accept:text/plain"  -H X-SAP-LogonToken:"""<TokenValue>""" http://<serverName>:6405/biprws/ray
light/v1/documents/7738/DP0/flows/count
```

UNIX

Note:

Uses the `logtok` variable set at login.

```
./curl.exe -G -i -H "accept:text/plain"  -H X-SAP-LogonToken:"$logtok" http://<serverName>:6405/biprws/ray
light/v1/documents/7738/dataproviders/DP0/flows/count
```

Response

```
HTTP/1.1 200 OK
Server: Apache-Coyote/1.1
Date: Thu, 07 Jun 2012 08:25:56 GMT
Content-Type: text/plain
Content-Length: 1

1
```

Related Topics

• /logon/long
• /documents/{documentId}/dataproviders
• /documents

3.5.4 /documents/{documentId}/dataproviders/{dataproviderId}/flows/{flowIndex}

Retrieves in XML or CSV format, details on the data provider flow specified by the URL parameter `flowIndex`.

Note:

• `{documentId}`: The identifier of the Web Intelligence document is retrieved in the documents list by: `GET http://<serverName>:6405/biprws/raylight/vx/documents`.
• `{dataproviderId}`: The identifier of the dataprovider available for a document is retrieved by: `GET http://<serverName>:6405/biprws/raylight/vx/documents/{documentId}/dataproviders`
• `{flowIndex}`: The number of a dataprovider flow available for one document is retreived by `GET http://<serverName>:6405/biprws/raylight/vx/documents/documentId/dataproviders/dataproviderId/flow/count`. The first index position is: 0.

Request:

```
GET http://<serverName>:6405/biprws/raylight/vx/documents/{documentId}/dat
aproviders/{dataproviderId}/flows/{flowIndex}
```

Header	Value
Accept	text/xml or text/plain
X-SAP-LogonToken	The logon token value, in quotation marks

Response:

Header	Value
Status Code	HTTP response code
Content-Type	text/xml or text/plain
Content-Length	Length of content in the response body

Body
For one data provider retrieves the flow and the detail flow. In XML format, the index cells and their values by row. In CSV format, values only.

Example: **Retrieve values of a data provider flow in plain text format**

Note:
Retrieves the first flow (flowIndex 0) of the data provider DP0 available for the document ID 7744.

Windows

```
curl -G -i -H "accept:text/plain" -H X-SAP-LogonToken:"""<TokenValue>""" http://<serverName>:6405/biprws/ray
light/v1/documents/7744/dataproviders/DP0/flows/0
```

UNIX

Note:

Uses the `logtok` variable set at login.

```
./curl.exe -G -i -H "accept:text/plain"  -H X-SAP-LogonToken:"$logtok" http://<serverName>:6405/biprws/ray
light/v1/documents/7744/dataproviders/DP0/flows/0
```

Response

```
HTTP/1.1 200 OK
Server: Apache-Coyote/1.1
Date: Thu, 07 Jun 2012 12:10:05 GMT
Content-Type: text/plain
Content-Length: 1026

"Year";"State";"Sales revenue";"Margin"
"2001";"California";"1704210.8";"774893.4"
"2001";"Colorado";"448301.5";"203700.6"
"2001";"DC";"693210.5";"310356.2"
"2001";"Florida";"405985.1";"192479.3"
"2001";"Illinois";"737914.2";"348749.8"
"2002";"California";"2782679.5";"1076528"
"2002";"Colorado";"768389.5";"294482.6"
"2002";"DC";"1215158";"457230.6"
"2003";"California";"2992679";"1121488.5"
...
```

Example: Retrieve values of a data provider flow in XML format

Note:

Retrieves the first flow (flowIndex 0) of the data provider DP0 available for the document ID 12575.

Windows

```
curl -G -H "accept:text/xml" -H X-SAP-LogonToken:"""<TokenValue>""" http://<serverName>:6405/biprws/ray
light/v1/documents/12575/dataproviders/DP0/flows/0
```

UNIX

Note:

Uses the `logtok` variable set at login.

```
./curl.exe -G -H "accept:text/xml"  -H X-SAP-LogonToken:"$logtok" http://<serverName>:6405/biprws/ray
light/v1/documents/12575/dataproviders/DP0/flows/0
```

Response

```
 <DATA_PROVIDERS UID="20916|0|doc_basic|wid" FORCE_REFRESH="FALSE" DATA_PROVIDER="" FORMATTED="FALSE" RE
FRESH="FALSE" >
  <DATA_PROVIDER NAME="Query 1" SOURCE="eFashion-raylight" DATE="2012/07/31 13:44:25" DURATION="1" CUBE="0">

   <COLUMN DSID="DS0.DObc" DPID="DP0.DObc" INDEX="0" TYPE="string">Year</COLUMN>
   <COLUMN DSID="DS0.DOda" DPID="DP0.DOda" INDEX="1" TYPE="string">State</COLUMN>
   <COLUMN DSID="DS0.DOa5"DPID="DP0.DOa5" INDEX="2" TYPE="string">Lines</COLUMN>
   <COLUMN DSID="DS0.DO93" DPID="DP0.DO93" INDEX="3" TYPE="double">Sales revenue</COLUMN>
    <ROW>
     <CELL INDEX="0">2004</CELL>
     <CELL INDEX="1">California</CELL>
     <CELL INDEX="2">Accessories</CELL>
     <CELL INDEX="3">489665.9</CELL>
    </ROW>
    <ROW>
     <CELL INDEX="0">2004</CELL>
     <CELL INDEX="1">California</CELL>
     <CELL INDEX="2">City Skirts</CELL>
     <CELL INDEX="3">11072.2</CELL>
    </ROW>
    <ROW>
     <CELL INDEX="0">2004</CELL>
     <CELL INDEX="1">California</CELL>
```

```
      <CELL INDEX="2">City Trousers</CELL>
      <CELLINDEX="3">10935.1</CELL>
   </ROW>
   <ROW>
   ...
   </ROW>
   <ROW>
   ...
   </ROW>
  <DATA_PROVIDER/>
<DATA_PROVIDERS/>
```

Related Topics

• /documents
• /documents/{documentId}/dataproviders
• /documents/{documentId}/dataproviders/{dataproviderId}/flows/count
• /logon/long

3.6 Scheduling Documents

This section describes the main operations to schedule Web Intelligence documents:

• How to retrieve the list of the existing Web Intelligence document schedules
• How to get the details of a schedule action
• How to add a new schedule
• How to delete an existing schedule

The default URL to request Web Intelligence Restful web services is the following:

```
http://<serverName>:6405/biprws/raylight/vx
```

Related Topics

• /documents/{documentId}/schedules
• /documents/{documentId}/schedules/{scheduleId}

3.6.1 /documents/{documentId}/schedules

This URL retrieves the list of existing schedules for a Web Intelligence document. It is also used to add a new schedule.

For a more complete information on scheduling, refer to the *SAP Business Objects Business Intelligence platform, BI Launch Pad User Guide* on the Help Portal. The link is referenced at the bottom of this section.

Note:

`{documentId}`: The identifier of the Web Intelligence document is retrieved in the document list by: `GET http://<serverName>:6405/biprws/raylight/vx/documents`. You can know if a document has been scheduled by retrieving details on the document with: `GET http://<server Name>:6405/biprws/raylight/vx/documents/{documentId}`. The `<scheduled>` element returned in the response body provides `true` if the document has been scheduled, otherwise `false`.

Retrieves a list of existing schedules

Request:

```
GET http://<serverName>:6405/biprws/raylight/vx/documents/{documentId}/sched
ules
```

Header	Value
Accept	`application/xml` or `application/json`
X-SAP-LogonToken	The logon token value, in quotation marks

Response:

Header	Value
Status Code	HTTP response code.
Content-Type	`application/xml` or `application/json`
Content-Length	Length of content in the response body

Body
For each schedule, its `id`, `name`, `format`, and `status`. Status can be: Pending, Running, Paused, Completed or Failed.

Example: Retrieve list of schedule instances for a document

Windows

```
curl -i -G -H "accept:application/xml" -H X-SAP-logonToken:"""<TokenValue>""" http://<server
Name>:6405/biprws/raylight/v1/documents/4986/schedules
```

UNIX

Note:

Uses the `logtok` variable set at login

```
./curl.exe -G -i -H "accept:application/xml" -H "X-SAP-LogonToken:$logtok" http://<serverName>:6405/biprws/ray
light/v1/documents/4986/schedules
```

Response

```
HTTP/1.1 200 OK
Server: Apache-Coyote/1.1
Content-Type: application/xml
Content-Length: 188

<schedules>
  <schedule>
    <id>9369</id>
    <name>test-now-schedule</name>
    <format type="webi"/>
    <status>Completed</status>
  </schedule>
  <schedule>
    <id>9439</id>
    <name>test-once-schedule</name>
    <format type="webi"/>
    <status>Failed</status>
  </schedule>
  <schedule>
  ...
  </schedule>
</schedules>
```

Add a new schedule

You can add a new schedule for a Web Intelligence document.

The schedule can be sent in different formats to several destinations and set just for once, daily, hourly or monthly. You can also select a server group that the system uses to run the schedule. These settings are described in the body of the request.

Request:

POST http://<serverName>:6405/biprws/raylight/vx/documents/{documentId}/sched
ules

Header	Value
Accept	application/xml or application/json
X-SAP-LogonToken	The logon token value, in quotation marks

For the new schedule, specify in the request body:

- The name
- The destination. `<inbox/>` inbox of BI Launch Pad, the `<mail>`, `<ftp>`, `<filesystem>` on server path.
- The document format type. It can be: `"webi"`, `"pdf"`, `"xls"`, `"csv"`. By default, the format is `"webi"`. `"csv"` type may have specific options.
- The recurrence can be: `<once>`, `<now>`, `<hourly>`, `<daily>`, `<monthly>`.
- The server group used to run the schedule.

These parameters are described for clarity, in the different tables below.

The following table describe the XML Request Body <destination/> part

Body XML for mail <destination>

`<schedule/>`
 	
`<name/>`
 	
`<destination/>`
 	
For all possible destinations:
 	
`<useAutomaticName/>`: Boolean. Default=`true`. The name of the schedule document. If true the name is the same as the one specified by `<name/>`.
 	
`<useSpecificName/>`: If `<useAutomaticName=false/>` the specific name of the schedule document at destination
 	
`<keepInstanceInHistory/>`. Boolean. Default= `true`. Keep the instance of the schedule document in history.
 	
`<useDefaultSettings/>`. Boolean. Default=`false`.
 	
Destination `<mail>`
 	
`<mail>`
 	
`<from>somebody@company.com</from>`
 	
`<to>someone@company.com</to>`
 	
`<cc>somebody_in_copy@company.com</cc>`
 	
`<bcc>people_in_blind_copy@company.com</bcc>`
 	
`<subject>Web Intelligence Restful WS</subject>`
 	
`<message>Text to send</message>`
 	
`<addAttachment>true</addAttachment>`
 	
`</mail>`

Body XML for ftp <destination>

```
<schedule/>
```

```
<name/>
```

```
<destination/>
```

For all possible destinations:

`<useAutomaticName/>`: Boolean. Default=`true`. The name of the schedule document. If true the name is the same as the one specified by `<name/>`.

`<useSpecificName/>`: If **<**`useAutomaticName=false`**/>** the specific name of the schedule document at destination

`<keepInstanceInHistory/>`. Boolean. Default= `true`. Keep the instance of the schedule document in history.

`<useDefaultSettings/>`. Boolean. Default=`false`.

Destination **<**`ftp`**>**

```
<ftp>
```

```
<host>host_name </host>
```

```
<port>port_numer</port>
```

```
<username>user_name</username>
```

```
<password>password</password>
```

```
<account>account_name</account>
```

```
<directory>directory_name</directory>
```

```
</ftp>
```

Body XML for filesystem <destination>

```
<schedule/>

<name/>

<destination/>
```

For all possible destinations:

`<useAutomaticName/>`: Boolean. Default=`true`. The name of the schedule document. If true the name is the same as the one specified by `<name/>`.

`<useSpecificName/>`: If **<**`useAutomaticName=false`**/>** the specific name of the schedule document at destination

`<keepInstanceInHistory/>`. Boolean. Default= `true`. Keep the instance of the schedule document in history.

`<useDefaultSettings/>`. Boolean. Default=`false`.

Destination **<**`filesystem`**>**

```
<filesystem>

<username>user_name</username>

<password>password</password>

<directory>directory_name</directory>

</filesystem>
```

Table 3-80: XML Request Body for <format > part

Body XML for <format>
``
<format type= "webi"/> or

<format type= "pdf"/>or

<format type= "xls"/> or

<format type= "csv"/>
```
Specific for "csv format type:
```
<format type="csv"/>

<properties>

<property key= "textQualifier" >'</property>

<property key= "columnDelimiter" >,</property>

<property key= "charset" >UTF-8</property>

<property key= "onePerDataProvider" > false

</property>

</properties>

</format>
``` |

Table 3-81: XML Request Body Recurrence part

Body XML for Recurrence	
| ```

``` | Schedule now |

Body XML for Recurrence	

`<once retriesAllowed="2" retryInter valInSeconds= "60" >`
 	
 `<startdate>2012-08-26T15:58:51.000+02:00</startdate>`
 	
 `<enddate>2013-08-27T15:58:51.000+02:00</enddate>`
 	
 `</once>`
	Schedule just once.
	
	 This schedule is launched at the start date only.

`<daily retriesAllowed="2" retryInter valInSeconds= "60" > <start date/>2012-08-26T15:58:51.000+02:00</startdate>`
 	
 `<enddate>2012-09-14T15:58:51.000+02:00</enddate>`
 	
 `<dayinterval>1</dayinterval>`
 	
 `</daily>`
	Daily schedule
	 • retriesAllowed="2" retryIntervalInSeconds= "60" (retry 2 times with 60 sec interval)
	 • the date and the time to launch the schedule
	 • the date and the time to stop the schedule
	 • the day interval to repeat the schedule

`<hourly retriesAllowed="2" retryIn tervalInSeconds="60" >`
 	
 `<startdate>2012-08-26T15:58:51.000+02:00</startdate>`
 	
 `<enddate>2012-09-14T15:58:51.000+02:00</enddate>`
 	
 `<hour>1</hour>`
 	
 `<minute>30</minute>`
 	
 `</hourly>`
	Hourly schedule
	 • retriesAllowed="2" retryIntervalInSeconds= "60" (retry 2 times with 60 sec interval)
	 • the date and the time to launch the schedule
	 • the date and the time to stop the schedule
	 • the time interval to repeat the schedule.

`<monthly retriesAllowed="2" retryIn tervalInSeconds= "60" >`
 	
 `<startdate>2012-08-26T15:58:51.000+02:00</startdate>`
 	
 `<enddate>2013-09-14T15:58:51.000+02:00</enddate>`
 	
 `<month>1</month>`
 	
 `</monthly>`
	Monthly schedule
	 • retriesAllowed="2" retryIntervalInSeconds= "60" (retry 2 times with 60 sec interval)
	 • the date and the time to launch the schedule
	 • the date and the time to stop the schedule
	 • the month interval to repeat the schedule

Table 3-82: XML Request Body Server Group

Body XML for Server Group	Description
`<serverGroup id="1236" re quired="false"/>`	You can select the server group that the system uses to run a schedule. • `id`: an integer. The ID of the server group as defined in the Console Management System • `required`: a boolean. Default `false`. The schedule is then run preferably on the server that belongs to the specified server group.If the specified server is not available, then the object is processed on the next available server. Otherwise: `true`. If `true` only the specified servers found within the selected server group is used. If all of the servers in the server gruop are unavailable, then the schedule is not processed.

Response:

Header	Value
Status Code	HTTP response code
Content-Type	`application/xml` or `application/json`.
Content-Length	Length of content in the response body

Body
Return a message that provides schedule status. In case of success it provides the ID of the new schedule document. For more information on scheduling features, refer to the *BI Launch Pad User Guide* on the Help portal at the link referenced at the end of this section.

Example: Schedule Once to BI Inbox

Note:

Schedule the document ID 8002. Scheduling parameters are provided in the `scheduleOnce.xml` file called by `-d "@scheduleOnce.xml"` in cURL command. ID 9354 has been set to the scheduled document.

`scheduleOnce.xml` details

```
<schedule>
 <name>test-once-schedule</name>
 <format type="webi"/>
 <destination><inbox/></destination>
 <once retriesAllowed="2" retryIntervalInSeconds="60">
    <startdate>2012-06-15T14:39:00</startdate>
    <enddate>2012-06-15T14:40:00</enddate>
 </once>
</schedule>
```

Windows

```
curl -i -X "POST" -H "content-type:application/xml" -H "accept:application/xml" -d "@scheduleNow.xml" -H
X-SAP-logonToken:"""<tokenValue>""" http://<serverName>:6405/biprws/raylight/v1/documents/8002/schedules
```

UNIX

Note:

Uses the `logtok` variable set at login

```
./curl.exe -i -X "POST" -H "content-type:application/xml" -H "accept:application/xml" -d "@scheduleNow.xml"
 -H "X-SAP-LogonToken:$logtok" http://<serverName>:6405/biprws/raylight/v1/documents/8002/schedules
```

Response

```
HTTP/1.1 200 OK
Server: Apache-Coyote/1.1
Date: Mon, 11 Jun 2012 08:38:03 GMT
Content-Type: application/xml
Content-Length: 204

<success>
  <message>The resource of type 'schedule' with identifier '9354' has been successfully created.</message>

  <id>9354</id>
</success>
```

Example: Schedule Daily in File System

Note:

Schedule the document ID 8002. Scheduling parameters are provided in the `scheduledDaily Filesyst.xml` file called by `-d "@scheduleDailyFilesyst.xml"` in cURL command. ID 9354 has been set to the scheduled document.

`scheduledDailyFilesyst.xml` details

```
<schedule>
  <name>test_daily_file_syst</name>
  <format type="pdf"/>
  <destination>
      <filesystem>
        <username>user_name</username>
        <password>password</password>
        <directory>c:/temp/</directory>
      </filesystem>
```

```
    </destination>
  <daily retriesAllowed="2" retryIntervalInSeconds="30">
      <startdate>2012-09-14T14:00:00</startdate>
      <enddate>2012-09-14T16:00:00</enddate>
      <dayinterval>1</dayinterval>
  </daily>
</schedule>
```

Windows

```
curl -i -X "POST" -H "content-type:application/xml" -H "accept:application/xml" -d "@scheduledDaily
Filesyst.xml" -H X-SAP-logonToken:"""<tokenValue>""" http://<serverName>:6405/biprws/raylight/v1/docu
ments/8002/schedules
```

UNIX

Note:

Uses the `logtok` variable set at login

```
./curl.exe -i -X "POST" -H "content-type:application/xml" -H "accept:application/xml" -d "@scheduledDaily
Filesyst.xml" -H "X-SAP-LogonToken:$logtok" http://<serverName>:6405/biprws/raylight/v1/documents/8002/sched
ules
```

Example: Schedule Monthly FTP

Note:

Schedule the document ID 8002. Scheduling parameters are provided in the `scheduledMonth lyFtp.xml` file called by `-d "@scheduledMonthlyFtp.xml"` in cURL command. ID 9354 has been set to the scheduled document.

`scheduledMonthlyFtp.xml` details

```
<schedule>
  <name>test_monthly_ftp</name>
  <format type="webi"/>
  <destination>
    <ftp>
      <host>host_name </host>
      <port>port_numer</port>
      <username>user_name</username>
      <password>password</password>
      <account>account_name</account>
      <directory>c:/temp/</directory>
    </ftp>
   </destination>
  <monthly retriesAllowed="2" retryIntervalInSeconds="30">
    <startdate>2012-09-14T14:00:00</startdate>
    <enddate>2012-09-14T16:00:00</enddate>
    <month>1</month>
  </monthly>
</schedule>
```

Windows

```
curl -i -X "POST" -H "content-type:application/xml" -H "accept:application/xml" -d "@scheduledMonthlyFtp.xml"
 -H X-SAP-logonToken:"""<tokenValue>""" http://<serverName>:6405/biprws/raylight/v1/documents/8002/schedules
```

UNIX

Note:

Uses the `logtok` variable set at login

```
./curl.exe -i -X "POST" -H "content-type:application/xml" -H "accept:application/xml" -d "@scheduledMonth
lyFtp.xml.xml" -H "X-SAP-LogonToken:$logtok" http://<serverName>:6405/biprws/raylight/v1/documents/8002/sched
ules
```

Example: Schedule Hourly by mail

Schedule the document ID 8002. Scheduling parameters are provided in the `scheduledHourly Mail.xml` file called by `-d "@scheduledHourlyMail.xml"` in cURL command. ID 9354 has been set to the scheduled document.

`scheduledHourlyMail.xml` details

```
<schedule>
  <name>test_hourly_mail</name>
  <format type="webi"/>
  <destination>
    <mail>
      <from>somebody@company.com</from>
      <to>someone@company.com;someoneelse@company.com</to>
      <cc>somebody_in_copy@company.com</cc>
      <bcc>list_of_people_in_blind_copy.company.com</bcc>
      <subject>Web Intelligence Restful WS</subject>
      <message>Text to send</message>
      <addAttachment>true</addAttachment>
    </mail>
  </destination>
  <hourly retriesAllowed="2" retryIntervalInSeconds="30">
    <startdate>2012-09-14T14:00:00</startdate>
    <enddate>2012-09-14T16:00:00</enddate>
  <hour>1</hour>
  <minute>30</minute>
  </hourly>
</schedule>
```

Windows

```
curl -i -X "POST" -H "content-type:application/xml" -H "accept:application/xml" -d "@scheduledHourlyMail.xml"
 -H X-SAP-logonToken:"""<tokenValue>""" http://<serverName>:6405/biprws/raylight/v1/documents/8002/schedules
```

UNIX

Uses the `logtok` variable set at login

```
./curl.exe -i -X "POST" -H "content-type:application/xml" -H "accept:application/xml" -d "@scheduledHourly
Mail.xml" -H "X-SAP-LogonToken:$logtok" http://<serverName>:6405/biprws/raylight/v1/documents/8002/schedules
```

Example: Schedule now by servers in a specific server group

Schedule the document ID 8002. Scheduling parameters are provided in the `NowSpecificSG.xml` file called by `-d "@NowSpecificSG.xml"` in cURL command. ID 9354 has been set to the scheduled document. The server group ID appears in the CMS.

`NowSpecificSG.xml` details

```
<schedule>
  <name>specificServerInSG</name>
  <format type="webi"/>
  <serverGroup id="6839" required="true"/>
</schedule>
```

Windows

```
curl -i -X "POST" -H "content-type:application/xml" -H "accept:application/xml" -d "@NowSpecificSG.xml" -
H X-SAP-logonToken:"""<tokenValue>""" http://<serverName>:6405/biprws/raylight/v1/documents/8002/schedules
```

UNIX

Note:

Uses the `logtok` variable set at login

```
./curl.exe -i -X "POST" -H "content-type:application/xml" -H "accept:application/xml" -d "@NowSpecificSG.xml"
 -H "X-SAP-LogonToken:$logtok" http://<serverName>:6405/biprws/raylight/v1/documents/8002/schedules
```

Example: Schedule now by servers in a preferred server group

Note:

Schedule the document ID 8002. Scheduling parameters are provided in the `NowPreferredSG.xml`
file called by `-d "@NowPreferredSG.xml"` in cURL command. ID 9354 has been set to the
scheduled document. The server group ID appears in the CMS.

`NowPreferredSG.xml` details

```
<schedule>
  <name>preferredServerInSG</name>
  <format type="webi"/>
  <serverGroup id="6839"/>
</schedule>
```

Windows

```
curl -i -X "POST" -H "content-type:application/xml" -H "accept:application/xml" -d "@NowPreferredSG.xml"
-H X-SAP-logonToken:"""<tokenValue>""" http://<serverName>:6405/biprws/raylight/v1/documents/8002/schedules
```

UNIX

Note:

Uses the `logtok` variable set at login

```
./curl.exe -i -X "POST" -H "content-type:application/xml" -H "accept:application/xml" -d "@NowPreferredSG.xml"
 -H "X-SAP-LogonToken:$logtok" http://<serverName>:6405/biprws/raylight/v1/documents/8002/schedules
```

Related Topics

• http://help.sap.com/bobip40/
• /logon/long

3.6.2 /documents/{documentId}/schedules/{scheduleId}

This URL retrieves details of the schedule specified by the URL parameter scheduleId. It is also used
to delete a schedule.

Note:

• `{documentId}`: The identifier of the Web Intelligence document is retrieved in the documents list
  by: `GET http://<serverName>:6405/biprws/raylight/vx/documents`.

- `{scheduleId}`: The identifier of the schedule available for a document is retrieved by: `GET http://<serverName>:6405/biprws/raylight/vx/documents/{documentId}/schedules`

Retrieves details of schedule

Request:

```
GET http://<serverName>:6405/biprws/raylight/vx/documents/{documentId}/schedules/{scheduleId}
```

Header	Value
`Accept`	`application/xml` or `application/json`
`X-SAP-LogonToken`	The logon token value, in quotation marks

Response:

Header	Value
Status Code	HTTP response code.
`Content-Type`	`application/xml` or `application/json`
`Content-Length`	Length of content in the response body

Body
Provides for the specified schedule: its `id`, `name`, `format` and `status`.

Example: Retrieve status on schedule document

Note:

Retrieves schedule information of the scheduled instance ID 9439 based on the document 8023

Windows

```
curl -i -G -H "accept:application/xml" -H X-SAP-logonToken:"""TokenValue""" http://<server
Name>:6405/biprws/raylight/v1/documents/8023/schedules/9439
```

UNIX

Uses the `logtok` variable set at login.

```
./curl.exe -G -i -H "accept:application/xml" -H "X-SAP-LogonToken:$logtok" http://<serverName>:6405/biprws/ray
light/v1/documents/8023/schedules/9439
```

Response

```
HTTP/1.1 200 OK
Server: Apache-Coyote/1.1
Date: Fri, 15 Jun 2012 09:32:45 GMT
Content-Type: application/xml
Content-Length: 184

<schedule>
  <id>9439</id>
  <name>GC-now-schedule</name>
  <format type="webi"/>
  <status>Completed</status>
</schedule>
```

Delete a schedule

Request:

```
DELETE http://<serverName>:6405/biprws/raylight/vx/documents/{documen
tId}/schedules/{scheduleId}
```

Note:

- `{documentId}`: The identifier of the Web Intelligence document is retrieved in the documents list by: `GET http://<serverName>:6405/biprws/raylight/vx/documents`
- `{scheduleId}`: The identifier of the schedule available for a document is retrieved by: `GET http://<serverName>:6405/biprws/raylight/vx/documents/{documentId}/schedules`

Header	Value
Accept	application/xml or application/json
X-SAP-LogonToken	The logon token value, in quotation marks

Response:

Header	Value
Status Code	HTTP response code.
Content-Type	application/xml or application/json
Content-Length	Length of content in the response body

Body
Provides the status of the delete action. `message` status and the `id` of the deleted schedule.

Example: Delete scheduled document instance

Windows

```
curl -i -X "DELETE" -H "accept:application/xml" -H X-SAP-LogonToken:"""<TokenValue>""" http://<server
Name>:6405/biprws/raylight/v1/documents/4986/schedules/9372
```

UNIX

Note:

Uses the `logtok` variable set at login

```
./curl.exe -i -X "DELETE" -H "accept:application/xml" -H "X-SAP-LogonToken:$logtok" http://<server
Name>:6405/biprws/raylight/v1/documents/4986/schedules/9372
```

Response

```
HTTP/1.1 200 OK
Server: Apache-Coyote/1.1
Date: Fri, 15 Jun 2012 10:14:15 GMT
Content-Type: application/xml
Content-Length: 204

<success>
  <message>The resource of type 'schedule' with identifier '9372' has been successfully removed
  <id>9372</id>
</success>
```

Related Topics

• /logon/long
• /documents
• /documents/{documentId}/schedules

3.7 Refresh Document

This section describes the refresh document operations. When refreshing a document, contexts and prompts must be identified, then filled.

• Refresh document without parameters
• Refresh document with parameters
• Fill parameters (contexts and prompts)

Note:

Supported prompts for this version:

- prompt with text and long text data,
- prompt with single value
- prompt with multiple values
- optional and non optional prompts

The default URL to request Web Intelligence Restful web services is the following:

```
http://<serverName>:6405/biprws/raylight/vx
```

3.7.1 documents/{documentId}/parameters

Retrieves the refresh parameters to be filled before running a query. It is also used to fill the parameter (if needed) and run (refresh) the query of the document.

Note:

`{documentId}`: The identifier of the Web Intelligence document is retrieved in the documents list by:
`GET http://<serverName>:6405/biprws/raylight/vx/documents`

Retrieves refresh parameters

Request

```
GET http://<serverName>:6405/biprws/raylight/v1/documents/{documentId}/param
eters
```

Header	Description
Accept	`application/xml` or `application/json`
X-SAP-LogonToken	The logon token value in quotation marks.

Response

Header	Value
Status code	HTTP response code
Content-type	`application/xml` or `application/json`
Content-length	Length of the content in the response body.

Body
The set of parameters to be filled to refresh a document: context and/or prompt, ID, name and the answer type and values in case of pre-filled default values.

Example: Retrieves refresh parameters

Windows

```
curl -G -i -H "accept:application/xml" -H X-SAP-LogonToken:"""<TokenValue>""" http://<server
Name>:6405/biprws/raylight/v1/documents/{documentId}/parameters
```

UNIX

Note:

Uses the `logtok` variable set at login.

```
./curl.exe -G -i -H "accept:application/xml" -H "X-SAP-LogonToken:$logtok" http://<serverName>:6405/biprws/ray
light/v1/documents/{documentId}/parameters
```

Response

Note:

If context

```
HTTP/1.1 200 OK
Server: Apache-Coyote/1.1
Date: Mon, 03 Sep 2012 14:10:42 GMT
Content-Type: application/xml
Content-Length: 689
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<parameters>
    <parameter type="context" optional="false">
        <id>0</id>
        <name>Select a context</name>
        <answer type="text" constrained="true">
          <info cardinality="single">
                <values>
                    <!--Default values-->
                    <value id="2">Reservations</value>
                    <value id="1">Sales</value>
                </values>
                <previous>
                    <!--Previous values-->
                    <value id="2">Reservations</value>
                </previous>
                <values>
            </info>
            <!--Values provided by client using PUT method see below-->
             <values>
                <value id="2">Reservations</value>
            </values>
        </answer>
    </parameter>
</parameters>
```

Note:

If no parameter

```
HTTP/1.1 200 OK
Server: Apache-Coyote/1.1
Date: Mon, 03 Sep 2012 14:21:05 GMT
Content-Type: application/xml
Content-Length: 70
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
```

```
<parameters/>
```

Refresh a document

You can refresh a document by providing parameters you retrieve using the GET method.

You can also ask for the refresh without providing any parameters (no request body). In this case, if a context or a prompt needs to be filled, Web Intelligence Restful Web Service returns it. If no parameter has to be filled the document is refreshed.

Note:

`{documentId}`: The identifier of the Web Intelligence document is retrieved in the documents list by:
`GET http://<serverName>:6405/biprws/raylight/vx/documents`

Request

`PUT http://<serverName>:6405/biprws/raylight/v1/documents/{documentId}/parameters`

Header	Value
Content-Type	application/xml or application/json
Accept	application/xml or application/json

Parameter	Value
documentId	Mandatory. Integer. The identifier of the Web Intelligence document.
context	
prompt	
name	
answer type	Text or numeric

Body	Description
XML format: ``` <parameters> <parameter> <id>0</id> <answer> <values> <value id="x"/> </values> </answer> </parameter> </parameters> ``` Json format: ``` {"parameters":{"parameter":{"id":0,"answer":{"values":{"value":{"@id":"2"}}}}}} ```	Optional. In case of no context and no prompt, no body is required. Depending on the context type and ID x returned in the body of the GET request, a value ID is returned in the <info/><values><value> A prompt can be text or numeric, and can be optional or mandatory.

Response

Header	Value
Status code	HTTP response code
`Content-Type`	`application/xml` or `application/json`
`Content-Length`	Length of content in the response body

Body
Status on refresh.

Example: Refresh document with parameters

Parameters are specified in `fillRefreshParameter.xml` called by `-d "@fillRefreshParameter.xml"` in cURL command

`fillRefreshParameter.xml` details

```
<parameters>
   <parameter>
    <id > 0 </ id>
    <answer>
     <values>
        <value id="x"/>
     </values>
    </answer>
```

```
</parameter>
</parameters>
```

Windows

```
curl -i -X "PUT" -H "content-type:application/xml" -H "accept:application/xml" -H X-SAP-LogonToken:"""<To
kenValue>""" -d "@fillRefreshParameter.xml" http://<serverName>:6405/biprws/raylight/v1/documents/{documen
tId}/parameters
```

UNIX

Note:

Uses the `logtok` variable set at login.

```
./curl.exe -i -X "PUT" -H "content-type:application/xml" -H "accept:application/xml" -H "X-SAP-LogonTo
ken:$logtok" -d "@fillRefreshParameter.xml" http://<serverName>:6405/biprws/raylight/v1/documents/{documen
tId}/parameters
```

Response

```
HTTP/1.1 200 OK
Server: Apache-Coyote/1.1
Date: Tue, 05 Jun 2012 08:10:36 GMT
Content-Type: application/xml
Content-Length: 355

<success>
  <message>The resource of type 'document' with identifier 'xxx' has been successfully updated.</message>
  <id>xxx</id>
</success>
```

Example: Refresh document with one parameter of type 'context' and one of type 'prompt' (XML format):

Since the RESTful service is stateless, the user must answer the first response before answering the subsequent returned prompt.

Response body:

```
<?xml version=1.0" encoding="UTF-8" standalone="yes"?>
<parameters>
   <parameter optional="false" type="content">
    <id > 0 </ id>
    <name>Select a context</name>
    <answer constrained="true" type="text">
     <info cardinality="single">
     <values>
        <value id="2">Reservations</value>
        <value id="1">Sales</value>
     </values>
     <previous>
        <value id="1">Sales</value>
     </previous>
     </info>
     <values>
        <value id="1">Sales</value>
     </values>
    </answer>
   </parameter>
</parameters>
```

The user provides the necessary context value as requested by the server:

Request body:

```
<parameters>
   <parameter optional="false" type="content">
    <id > 0 </ id>
```

```
    <answer type="text">
     <info cardinality="single">
     <values>
        <value id="1">Sales</value>
     </values>
    </answer>
   </parameter>
</parameters>
```

Further input is required for the prompt. The response body indicates this:

```
<?xml version=1.0" encoding="UTF-8" standalone="yes"?>
<parameters>
   <parameter optional="false" type="content">
   <id > 1 </ id>
   <name>Enter a value for Country:</name>
   <answer constrained="false" type="text">
    <info cardinality="single">
    <previous>
       <value>France</value>
    </previous>
    </info>
    <values>
       <value>France</value>
    </values>
   </answer>
   </parameter>
</parameters>
```

The user provides the necessary context value and prompt response as requested by the server:

Request body:

```
<parameters>
   <parameter optional="false" type="content">
   <id > 0 </ id>
   <answer type="text">
    <values>
       <value id="1">Sales</value>
    </values>
   </answer>
   </parameter>
</parameters>
<parameters>
   <parameter type="prompt">
   <id > 1 </ id>
   <answer type="text">
    <values>
     <value>France</value>
    </values>
   </answer>
   </parameter>
</parameters>
```

Response body:

```
<?xml version=1.0" encoding="UTF-8" standalone="yes"?>
<success>
  <message>The resource of type 'document' with identifier '23535' has been successfully updated.</message>

  <id>23535
</id>
</success>
```

Related Topics

• /logon/long

• /documents

3.8 Universe Management

This section describes the main operations available on Universes:

- Retrieves the universe list a user has access to (depending on user rights)
- Retrieves details on universe.

The default URL to request Web Intelligence Restful web services is the following:
`http://<serverName>:6405/biprws/raylight/vx`

3.8.1 /universes

Retrieves the list of universes a user has access to depending on user rights.

Request:

`GET http://<serverName>:6405/biprws/raylight/vx/universes`

Header	Value
`Accept`	`application/xml` or `application/json`
`X-SAP-LogonToken`	The logon token value, in quotation marks

Parameter	Description
`limit`	Optional. Default 10. Number of universes to return.
`type`	Optional. Universe type: `unv`, `unx`, `all`. Default: `all`.
`offset`	Optional. Default 0. Beginning of the universe list.

Response:

Header	Value
Status code	HTTP response code
Content-Type	application/xml or application/json
Content-Length	Length of content in the response body.

Body
The list of universes for a user. Universe id, cuid, name, type and folderId in the CMS.

Example: Retrieves the universe list

Note:
Retrieves 2 .unx universes.

Windows

```
curl -G -i -H "accept:application/xml" -H X-SAP-LogonToken:"""<TokenValue>""" http://<server
Name>:6405/biprws/raylight/v1/universes?type=unx&limit=2
```

UNIX

Note:
Uses the logtok variable set at login

```
./curl.exe -H "X-SAP-LogonToken:$logtok" http://<serverName>:6405/biprws/raylight/v1/universes\?type=unx\&lim
it=2
```

```
<universes>
    <universe>
        <id>5583</id>
        <cuid>AWlZg3bRbP1Dp4B.sGhLcgU</cuid>
        <name>ADAPT (2)</name>
        <type>unx</type>
        <folderId>509</folderId>
    </universe>
    <universe>
        <id>5607</id>
        <cuid>AZkBcu1NiE1NmdMxFR2ONY8</cuid>
        <name>ADAPT_LiveTest</name>
        <type>unx</type>
        <folderId>509</folderId>
    </universe>
</universes>
```

Related Topics

• /logon/long

3.8.2 /universes/{universeId}

Retrieves the detail of a universe referenced by its ID.

Request:

`GET http://<serverName>:6405/biprws/raylight/vx/universes/{universeId}`

Note:

`{universeId}`: The identifier of the universe retrieved in the universe list by: `GET http://<serverName>:6405/biprws/raylight/vx/universes`

Header	Value
`Accept`	`application/xml` or `application/json`
`X-SAP-LogonToken`	The logon token value, in quotation marks

Response:

Header	Value
Status Code	HTTP response code
`Content-Type`	`application/xml` or `application/json`
`Content-Length`	Length of content in the response body

Body (XML)
Details of the universe identified by its: `<id>`, `<cuid>`, `<name>`, `<type>`,`<folderId>`,`<connected>` the connection with the RDBMS is set and `<outline>`that described the universe elements.

Example: Details of universe ID xxx

Windows

```
curl -G -i -H "accept:application/xml" -H X-SAP-LogonToken:"""<TokenValue>""" http://<server
Name>:6405/biprws/raylight/v1/universes/9100
```

UNIX

Note:

Uses the `logtok` variable set at login

```
./curl.exe -G -i -H "accept:application/xml" -H "X-SAP-LogonToken:$logtok" http://<serverName>:6405/biprws/ray
light/v1/universes/9100
```

Response

```xml
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<universe>
    <id>9100</id>
    <cuid>AftJgs7FPGNBmkdNDnoG8Aw</cuid>
    <name>unv2</name>
    <type>unv</type>
    <folderId>9089</folderId>
    <connected>true</connected>
    <outline>
        <folder>
            <name>City</name>
            <item type="BODimension">
                <name>City Id</name>
                <id>DS0.DO1</id>
            </item>
            <item type="BODimension">
                <name>City</name>
                <id>DS0.DO2</id>
            </item>
            <item type="BODimension">
                <name>Region Id</name>
                <id>DS0.DO3</id>
            </item>
        </folder>
        <folder>
            <name>Country</name>
            <item type="BODimension">
                <name>Country Id</name>
                <id>DS0.DO4</id>
            </item>
            <item type="BODimension">
                <name>Country</name>
                <id>DS0.DO5</id>
            </item>
        </folder>
        <folder>
            ...
        </folder>
        <folder>
       ...
        </folder>
    </outline>
</universe>
```

Related Topics

• /universes
• /logon/long

More Information

Information Resource	Location
SAP BusinessObjects product information	http://www.sap.com
SAP Help Portal	Navigate to http://help.sap.com/businessobjects and on the "SAP BusinessObjects Overview" side panel click **All Products**. You can access the most up-to-date documentation covering all SAP BusinessObjects products and their deployment at the SAP Help Portal. You can download PDF versions or installable HTML libraries. Certain guides are stored on the SAP Service Marketplace and are not available from the SAP Help Portal. These guides are listed on the Help Portal accompanied by a link to the SAP Service Marketplace. Customers with a maintenance agreement have an authorized user ID to access this site. To obtain an ID, contact your customer support representative.
SAP Service Marketplace	http://service.sap.com/bosap-support > Documentation • Installation guides: https://service.sap.com/bosap-instguides • Release notes: http://service.sap.com/releasenotes The SAP Service Marketplace stores certain installation guides, upgrade and migration guides, deployment guides, release notes and Supported Platforms documents. Customers with a maintenance agreement have an authorized user ID to access this site. Contact your customer support representative to obtain an ID. If you are redirected to the SAP Service Marketplace from the SAP Help Portal, use the menu in the navigation pane on the left to locate the category containing the documentation you want to access.
Docupedia	https://cw.sdn.sap.com/cw/community/docupedia Docupedia provides additional documentation resources, a collaborative authoring environment, and an interactive feedback channel.
Developer resources	https://boc.sdn.sap.com/ https://www.sdn.sap.com/irj/sdn/businessobjects-sdklibrary

Information Resource	Location
SAP BusinessObjects articles on the SAP Community Network	https://www.sdn.sap.com/irj/boc/businessobjects-articles These articles were formerly known as technical papers.
Notes	https://service.sap.com/notes These notes were formerly known as Knowledge Base articles.
Forums on the SAP Community Network	https://www.sdn.sap.com/irj/scn/forums
Training	http://www.sap.com/services/education From traditional classroom learning to targeted e-learning seminars, we can offer a training package to suit your learning needs and preferred learning style.
Online customer support	http://service.sap.com/bosap-support The SAP Support Portal contains information about Customer Support programs and services. It also has links to a wide range of technical information and downloads. Customers with a maintenance agreement have an authorized user ID to access this site. To obtain an ID, contact your customer support representative.
Consulting	http://www.sap.com/services/bysubject/businessobjectsconsulting Consultants can accompany you from the initial analysis stage to the delivery of your deployment project. Expertise is available in topics such as relational and multidimensional databases, connectivity, database design tools, and customized embedding technology.