

IBM Endpoint Manager for Software Use Analysis
Version 9.1 (includes update 9.0.1, 9.0.1.1 and 9.0.1.2)

Integration Guide



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This edition applies to IBM Endpoint Manager for Software Use Analysis 9.0.1.2 (product number 5725-F57) and to all subsequent releases and modifications until otherwise indicated in new editions.

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Integrating



External systems integration is a key feature of Software Use Analysis. Business logic is enabled for integration and interfaces are provided for common integration points.

REST API

Managing large amounts of information by using the application user interface can be time-consuming. You can use the REST APIs as an alternative to the graphical user interface to reduce the time that is needed to manage your software inventory and the content of your software catalog.

Important: If you want to use REST API when you are not logged in to Software Use Analysis, you must provide the **token** parameter for each query. To check what your token is, in the top navigation bar, click your user name, and then click **Profile**. To check your API token, click **Show token**.

The **token** parameter is not required when you are logged in to Software Use Analysis.

Abbreviations

The following abbreviations are used in the documentation that is related to REST API:

HTTP Hyper Text Transfer Protocol. HTTP version 1.1 is defined in RFC 2616. Unless otherwise noted, the use of the term HTTP indicates both HTTP and HTTPS.

HTTPS

Hyper Text Transfer Protocol Secure, as defined in RFC 2818

JSON JavaScript Object Notation, as defined in ECMA-262

REST Representational State Transfer, as originally and informally described in *Architectural Styles and the Design of Network-based Software Architectures*

URI Uniform Resource Identifier, as defined in RFC 3986, Draft 5

REST API resources and HTTP methods

The operations of the Software Use Analysis REST API protocol are defined as HTTP methods on certain REST resources.

Table 1. Overview of REST operations

Target REST operation URI	HTTP methods	Purpose of the operation
api/get_token	POST	Returns a unique token that is required to authenticate REST API requests.
api/sam/about	GET	Returns the version of Software Use Analysis.
api/import_status.json	GET	Returns the current status of the data import.
configs	GET	Returns information about the current settings of the administration server.

Table 1. Overview of REST operations (continued)

Target REST operation URI	HTTP methods	Purpose of the operation
configs	PUT	Changes the current settings of the administration server.
processors	GET	Returns the list of processors that are discovered by agents according to the processor value unit (PVU) table.
swinventory/confirm	POST	Confirms instances to bundle or assign.
swinventory/confirmRelease	POST	Confirms the assignment of instances for a release.
swinventory/exclude	POST	Excludes instances from a pricing application.
swinventory/include	POST	Includes instances in a pricing application.
swinventory/instanceToShare	GET	Returns a list of software releases that can share a particular instance.
swinventory/products	GET	Returns a list of software products.
swinventory/product/{product_id}/releases	GET	Returns a list of releases of a particular software product that is identified by its identifier.
swinventory/reassign	POST	Reassigns instances to a product.
swinventory/reassignRelease	POST	Reassigns instances to a product for a list of releases.
swinventory/release/{release_id}/instances	GET	Returns a list of instances for the requested software product release.
swinventory/share	POST	Shares an instance with a list of software products.
swinventory/targetBundlesOfInstances	GET	Returns a list of possible releases to which the requested software instance can be reassigned.
swinventory/targetBundlesOfReleases	GET	Returns a list of possible releases to which the instances of the requested software releases can be reassigned.
swinventory/targetInstances	GET	Returns a list of target instances that will be reassigned to a particular release.
api/sam/computer_systems	GET	Returns a list of computer systems in your infrastructure.
api/sam/software_instances	GET	Returns a list of installed software instances.
api/sam/license_usages	GET	Returns information about license usage.

Common connectors and operators

You use connectors and operators to build query segments that filter on matching conditions and values.

Connectors

Table 2. Connectors

Connector	Description
and	Add all clauses with an and concatenator
or	Add all clauses with an or concatenator

Operators

Table 3. Operators

Operator	Description
=	Equals.
!=	Not equals.
<	Less than. Numeric fields only.
<=	Less than or equal to. Numeric fields only.
>	Greater than. Numeric fields only.
>=	Greater than or equal to. Numeric fields only.
begins_with	String begins with the specified value. String fields only.
contains	String contains the specified value. String fields only.
ends_with	String ends with the specified value. String fields only.
not_begins_with	String does not begin with the specified value. String fields only.
not_contains	String does not contain the specified value. String fields only.
not_ends_with	String does not end with the specified value. String fields only.

REST API for retrieving authentication token

You use the POST operation on the `api/get_token` element to request your unique token that is required to authenticate the REST API requests.

To request your unique token, use the following URL:

`https://hostname:port/api/get_token`

Note: You can also view your token in the **Profile** preferences of Software Use Analysis.

Table 4. Operation descriptions

Operation details	Description
Operation	POST <code>/api/get_token</code>
Purpose	Returns the authentication token
HTTP method	POST
Resource URI	<code>https://server_host_name:port_number/api/get_token</code>
URL link relation	n/a
URI query parameters	n/a
Request headers	Header Accept-Language (optional) Values en-US (only English is supported) Used to negotiate the language of the response. If this header is not specified, the content is returned in the server language.
Request payload	<pre>{ "user" : "username", "password" : "password" }</pre>
Request Content-Type	application/json

Table 4. Operation descriptions (continued)

Operation details	Description
Response headers	Header Content-Type Values application/json Specifies the content type of the response.
	Header Content-Language Values en-US, ... Specifies the language of the response content. If this header is not specified, the content is returned in the server language.
Response payload	Token element
Response Content-Type	application/json
Normal HTTP response codes	200 – OK
Error HTTP response codes	500 – "Bad Request" if a query parameter contains errors or is missing Message body includes an error message with details.

Example HTTP conversation

Request

```
POST api/get_token
Host: localhost:9081
Accept: application/json
Accept-Language: en-US
```

Request header

```
Content-Type: application/json
```

Request payload

```
{
  "user" : "admin",
  "password" : "password"
}
```

Response header

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Language: en-US
```

Response body (JSON)

```
{
  "token" : "44072fb20fbe38322b5e67a7e780978e20abbc80"
}
```

REST API for retrieving the Software Use Analysis version

You use the GET operation on the `api/sam/about` element to request information about the version of Software Use Analysis.

To retrieve information about the current version of Software Use Analysis, use the following URL:

```
https://hostname:port/api/sam/about?token=token
```

Important:

- Each of your API requests must be authenticated with the **token** parameter. You can either retrieve it by using REST API for retrieving authentication token or you can view it in the **Profile** preferences of Software Use Analysis.
- By default, the data retrieved is sorted by id.

Table 5. Operation descriptions

Operation details	Description
Operation	GET/api/sam/about
Purpose	Returns the version of Software Use Analysis
HTTP method	GET
Resource URI	https://server_host_name:port_number/api/sam/about
URL link relation	n/a
URI query parameters	n/a
Request headers	<p>Header Accept-Language (optional)</p> <p>Values en-US (only English is supported)</p> <p>Used to negotiate the language of the response. If this header is not specified, the content is returned in the server language.</p>
Request payload	n/a
Request Content-Type	application/json
Response headers	<p>Header Content-Type</p> <p>Values application/json</p> <p>Specifies the content type of the response.</p> <hr/> <p>Header Content-Language</p> <p>Values en-US, ...</p> <p>Specifies the language of the response content. If this header is not specified, the content is returned in the server language.</p>
Response payload	About element
Response Content-Type	application/json
Normal HTTP response codes	200 – OK
Error HTTP response codes	<p>500 – "Bad Request" if a query parameter contains errors or is missing</p> <p>Message body includes an error message with details.</p>

Example HTTP conversation

Request

```
GET api/sam/about
?token=7adc3efb175e2bc0f4484bdd2efca54a8fa04623
Host: localhost:9081
Accept: application/json
Accept-Language: en-US
```

Response header

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Language: en-US
```

Response body (JSON)

```
{
  "product": "IBM Endpoint Manager for Software Use Analysis",
  "version": "9.1.20140331-2015"
}
```

REST API for retrieving the data import status

You use the GET operation on the `api/import_status.json` element to check the status of data imports in Software Use Analysis.

By using this API, you can check whether an import is currently in progress, what is its percentage status, or when did the last successful import finish. Basing on this information, you can recognize whether data that you can retrieve with other REST API types resembles the actual state of your infrastructure. To do so, ensure that you always retrieve the API data if no imports are currently in progress and the last successful one finished recently.

To retrieve information about the status of a data import, use the following URL:

`https://hostname:port/api/import_status.json?token=token`

Important: Each of your API requests must be authenticated with the **token** parameter. To view your unique token, log in to Software Use Analysis, in the top-right corner expand the list under your user name, and then click **Profile**.

Table 6. Operation descriptions

Operation details	Description
Operation	GET /api/import_status.json
Purpose	Returns the status of the data import
HTTP method	GET
Resource URI	<code>https://server_host_name:port_number/api/import_status.json</code>
URL link relation	n/a
URI query parameters	n/a
Request headers	Header Accept-Language (optional) Values en-US (only English is supported) Used to negotiate the language of the response. If this header is not specified, the content is returned in the server language.
Request payload	n/a
Request Content-Type	application/json
Response headers	Header Content-Type Values application/json Specifies the content type of the response. Header Content-Language Values en-US, ... Specifies the language of the response content. If this header is not specified, the content is returned in the server language.
Response payload	Import status element
Response Content-Type	application/json

Table 6. Operation descriptions (continued)

Operation details	Description
Normal HTTP response codes	200 – OK
Error HTTP response codes	500 – "Bad Request" if a query parameter contains errors or is missing Message body includes an error message with details.

Query parameters

You can use query parameters to narrow down the results of your search. The following table presents query parameters that you can use for the `api/import_status.json` element.

Table 7. Query parameters for retrieving the import status

Parameter	Description	Required	Value
format	Specifies the format of the retrieved information. The possible values are json or xml. Retrieve information in the json format: <i>URL?format=json</i>	No	String
token	A unique user authentication identifier. You can view your token in the Profile preferences of Software Use Analysis.	Yes	Alphanumeric

Example HTTP conversation

Request

```
GET api/import_status.json
?token=7adc3efb175e2bc0f4484bdd2efca54a8fa04623
Host: localhost:9081
Accept: application/json
Accept-Language: en-US
```

Response header

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Language: en-US
```

Response body (JSON)

If a data import has never been initiated:

```
{
  "mode": "none",
  "can_run_imports": true,
  "import_status_url": "/import_status",
  "import_create_url": "/management/imports",
  "progress": 59
}
```

If a data import is in progress:

```
{
  "mode": "running",
  "can_run_imports": true,
  "import_status_url": "/import_status",
  "import_create_url": "/management/imports",
  "progress": 59
}
```

If a data import is not running:

```

{
  "mode": "idle"/"pending",
  "can_run_imports": true,
  "import_status_url": "/import_status",
  "import_create_url": "/management/imports",
  "last_status": successful,
  "last_success_time": "2014-06-18T04:00:29Z"
}

```

Where:

- mode - status of the data import, it can assume the following values:
 - none - a data import has never been initiated
 - idle - no data imports are currently running
 - running - a data import is in progress
 - pending - an action performed in the user interface requires a data import to be started for the change to take effect
- can_run_imports - specifies whether the user retrieving this API can run imports,
- import_status_url - web address of this API,
- import_create_url - web address of the data imports panel in Software Use Analysis,
- progress - percentage status of the running import,
- last_status - status of the last import,
- last_success_time - date of the last successful import.

REST API for software inventory management

You can reduce the time needed to manage your software inventory in a large environment by using REST API instead of the application user interface. You can use REST API to get a list of software products, releases, and release instances. You can also find out how your software can be bundled.

Retrieval of software products

You use the GET operation on the `swinventory/products` element to request information about the software products that are installed in your infrastructure.



You must have the Manage IBM Software Classification permission to perform this task.

Table 8. Operation descriptions

Operation details	Description
Operation	GET <code>/swinventory/products</code>
Purpose	Returns a list of software products.
HTTP method	GET
Resource URI	<code>https://server_host_name:port_number/api/sam/swinventory/products</code>
URL link relation	n/a
URI query parameters	For a list of applicable query parameters, see: Query parameters.
Request headers	<p>Header Accept-Language (optional)</p> <p>Values en-US (only English is supported)</p> <p>Used to negotiate the language of the response. If this header is not specified, the content is returned in the server language.</p>
Request payload	n/a
Request Content-Type	Application/json

Table 8. Operation descriptions (continued)

Operation details	Description
Response headers	Header Content-Type Values Application/json Specifies the content type of the response.
	Header Content-Language Values en-US, ... Specifies the language of the response content. If this header is not specified, the content is returned in the server language.
Response payload	Products element
Response Content-Type	Application/json
Normal HTTP response codes	200 – OK
Error HTTP response codes	400 – "Bad Request" if a query parameter contains errors or is missing 401 – "Unauthorized" if the user is not authorized to perform the operation 416 – "Requested Range Not Satisfiable" if the user provided a start or count range that cannot be satisfied Message body includes an error message with details.

Query parameters

You can use query parameters to narrow down the results of your search. The following table presents query parameters that you can use for the `swinventory/products` element.

Table 9. Query parameters for retrieving software products

Parameter	Description	Required	Value
confirmed_filter	The state of bundling confirmation. If the parameter is not specified, both confirmed and unconfirmed software instances are displayed.	No	true false
count	The number of rows to be returned.	No	Numeric Default: 80
endDate	Discovery end date. If the parameter is not specified, the current date is used.	No	Date in the YYYY-MM-DD format
part_number_filter	The part number to which the software item was assigned according to the imported part number list.	No	String
product_release_component_filter	The name of the software product, release, or component.	No	String
reportGroup	Identifier of the report group to which the computer that has the software installed belongs.	No	Numeric Default: 1
start	The number of the first row of data to be returned.	No	Numeric Default: 0

Table 9. Query parameters for retrieving software products (continued)

Parameter	Description	Required	Value
startDate	Discovery start date. If the parameter is not specified, the first date that is not covered by a signed audit report is used. If there are no signed reports, the server installation date is used.	No	Date in the YYYY-MM-DD format
token	A unique user authentication identifier.	Yes	Alphanumeric

Example HTTP conversation

Request

```
GET /api/sam/swinventory/products
?token=7adc3efb175e2bc0f4484bdd2efca54a8fa04623&startDate=2012-10-19
&endDate=2012-10-19 HTTP/1.1
Host: localhost:9080
Accept: application/json
Accept-Language: en-US
```

Response header

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Language: en-US
```

Response body (JSON)

```
[{
  "id": "16113",
  "level": "product",
  "isConfirmed": "false",
  "productReleaseComponent": "IBM Cognos Business Intelligence
for Non-Production Environment",
  "children": "true",
  "nmbOfAllRows": "52",
  "confidence": "11",
  "type": "root"
}]
```

Retrieval of releases of a product

You use the GET operation on the `swinventory/product/{product_id}/releases` element to request information about the releases of a particular software product that is installed in your infrastructure.



You must have the Manage IBM Software Classification permission to perform this task.

Table 10. Operation descriptions

Operation details	Description
Operation	GET /swinventory/product/{product_id}/releases
Purpose	Returns a list of releases of a particular software product that is identified by its identifier.
HTTP method	GET
Resource URI	https://server_host_name:port_number/api/sam/swinventory/product/{product_id}/releases
URL link relation	n/a
URI query parameters	For a list of applicable query parameters, see: Query parameters.

Table 10. Operation descriptions (continued)

Operation details	Description
Request headers	<p>Header Accept-Language (optional)</p> <p>Values en-US (only English is supported)</p> <p>Used to negotiate the language of the response. If this header is not specified, the content is returned in the server language.</p>
Request payload	n/a
Request Content-Type	Application/json
Response headers	<p>Header Content-Type</p> <p>Values Application/json</p> <p>Specifies the content type of the response.</p> <hr/> <p>Header Content-Language</p> <p>Values en-US, ...</p> <p>Specifies the language of the response content. If this header is not specified, the content is returned in the server language.</p>
Response payload	Releases element
Response Content-Type	Application/json
Normal HTTP response codes	200 – OK
Error HTTP response codes	<p>400 – "Bad Request" if a query parameter contains errors or is missing</p> <p>401 – "Unauthorized" if the user is not authorized to perform the operation</p> <p>404 – "Not Found" if a release or instance of the product or version that is requested does not exist</p> <p>416 – "Requested Range Not Satisfiable" if the user provided a start or count range that cannot be satisfied</p> <p>Message body includes an error message with details.</p>

Query parameters

You can use query parameters to narrow down the results of your search. The following table presents query parameters that you can use for the `swinventory/product/{product_id}/releases` element.

Table 11. Query parameters for retrieving releases of a software product

Parameter	Description	Required	Value
confirmed_filter	The state of bundling confirmation. If the parameter is not specified, both confirmed and unconfirmed software instances are displayed.	No	true false
count	The number of rows to be returned.	No	Numeric Default: 80
endDate	Discovery end date. If the parameter is not specified, the current date is used.	No	Date in the YYYY-MM-DD format
part_number_filter	The part number to which the software item was assigned according to the imported part number list.	No	String

Table 11. Query parameters for retrieving releases of a software product (continued)

Parameter	Description	Required	Value
product_release_component_filter	The name of the software product, release, or component.	No	String
reportGroup	Identifier of the report group to which the computer that has the software installed belongs.	No	Numeric Default: 1
start	The number of the first row of data to be returned.	No	Numeric Default: 0
startDate	Discovery start date. If the parameter is not specified, the first date that is not covered by a signed audit report is used. If there are no signed reports, the server installation date is used.	No	Date in the YYYY-MM-DD format
token	A unique user authentication identifier.	Yes	Alphanumeric

Example HTTP conversation

Request

```
GET /api/sam/swinventory/product/38818/releases
?token=7adc3efb175e2bc0f4484bdd2efca54a8fa04623&startDate=2012-10-19
&endDate=2012-10-19 HTTP/1.1
Host: localhost:9080
Accept: application/json Accept-Language: en-US
```

Response header

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Language: en-US
```

Response body (JSON)

```
[{
  "nmbOfAllRows": "1",
  "level": "release",
  "productReleaseComponent": "DB2 UDB Query Patroller 6.1",
  "id": "61922",
  "numberOfAllInstances": "1",
  "children": "true"
}]
```

Retrieval of release instances

You use the GET operation on the `swinventory/release/{release_id}/instances` element to request information about the instances of a software product release for a particular release that is installed in your infrastructure.



You must have the Manage IBM Software Classification permission to perform this task.

Table 12. Operation descriptions

Operation details	Description
Operation	GET <code>/swinventory/release/{release_id}/instances</code>
Purpose	Returns a list of instances for the requested software product release.
HTTP method	GET
Resource URI	<code>https://server_host_name:port_number/api/sam/swinventory/release/{release_id}/instances</code>
URL link relation	n/a

Table 12. Operation descriptions (continued)

Operation details	Description
URI query parameters	For a list of applicable query parameters, see: "Query parameters."
Request headers	<p>Header Accept-Language (optional)</p> <p>Values en-US (only English is supported)</p> <p>Used to negotiate the language of the response. If this header is not specified, the content is returned in the server language.</p>
Request payload	n/a
Request Content-Type	Application/json
Response headers	<p>Header Content-Type</p> <p>Values Application/json</p> <p>Specifies the content type of the response.</p> <p>Header Content-Language</p> <p>Values en-US, ...</p> <p>Specifies the language of the response content. If this header is not specified, the content is returned in the server language.</p>
Response payload	Instances element. Each instance is a single component on a single agent.
Response Content-Type	Application/json
Normal HTTP response codes	200 – OK
Error HTTP response codes	<p>400 – "Bad Request" if a query parameter contains errors or is missing</p> <p>401 – "Unauthorized" if the user is not authorized to perform the operation</p> <p>404 – "Not Found" if a release or instance of the product or version that is requested does not exist</p> <p>416 – "Requested Range Not Satisfiable" if the user provided a start or count range that cannot be satisfied</p> <p>Message body includes an error message with details.</p>

Query parameters

You can use query parameters to narrow down the results of your search. The following table presents query parameters that you can use for the `swinventory/release/{release_id}/instances` element.

Table 13. Query parameters for retrieving release instances

Parameter	Description	Required	Value
confirmed_filter	The state of bundling confirmation. If the parameter is not specified, both confirmed and unconfirmed software instances are displayed.	No	true false
count	The number of rows to be returned.	No	Numeric Default: 80
endDate	Discovery end date. If the parameter is not specified, the current date is used.	No	Date in the YYYY-MM-DD format
name_host_filter	The name of the computer on which the software item is installed.	No	String

Table 13. Query parameters for retrieving release instances (continued)

Parameter	Description	Required	Value
name_server_filter	The name of the server on which the software item is installed.	No	String
operating_system_filter	Operating system of the computer on which the software item is installed.	No	String
part_number_filter	The part number to which the software item was assigned according to the imported part number list.	No	String
product_release_component_filter	The name of the software product, release, or component.	No	String
reportGroup	Identifier of the report group to which the computer that has the software installed belongs.	No	Numeric Default: 1
start	The number of the first row of data to be returned.	No	Numeric Default: 0
startDate	Discovery start date. If the parameter is not specified, the server installation date is used.	No	Date in the YYYY-MM-DD format
token	A unique user authentication identifier.	Yes	Alphanumeric

Example HTTP conversation

Request

```
GET /api/sam/swinventory/release/61922/instances
?token=7adc3efb175e2bc0f4484bdd2efca54a8fa04623&startDate=2012-10-19
&endDate=2012-10-19 HTTP/1.1
Host: localhost:9080
Accept: application/json
Accept-Language: en-US
```

Response header

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Language: en-US
```

Response body (JSON)

```
[{
  "isCharged": "true",
  "operatingSystem": "Linux Red Hat Enterprise Server 5.4 (2.6.18-164.el5)",
  "isConfirmed": "false",
  "currentServerId": "TLM_VM_VMware-42 3b 3b 73 2a 12 4a c5-e0 56 d1 30 74
6b 53 2a",
  "updateTime": "1374082814268",
  "children": "false",
  "hostname": "NC042189",
  "productInventoryId": "347",
  "id": "347",
  "level": "instance",
  "bundleRules": "the relation in the software catalog,
the stand-alone product discovery",
  "processorType": "Intel(R) Xeon(R) Multi-core 3400-3699 or 5500-5699",
  "isAgentDeleted": "false",
  "productReleaseComponent": "IBM CICS Transaction Gateway 6.0",
  "pvuPerCore": "70",
  "installationPaths": "/nfs/bak/SLES10.2/usr/catalog_test/linux01/1",
  "nmbOfAllRows": "4",
  "isSimple": "false"
}]
```

Retrieval of releases to which a software instance can be reassigned

You use the GET operation on the `swinventory/targetBundlesOfInstances` element to request information about the possible releases to which the requested software instance can be reassigned.



You must have the Manage IBM Software Classification permission to perform this task.

Table 14. Operation descriptions

Operation details	Description
Operation	GET <code>/swinventory/targetBundlesOfInstances</code>
Purpose	Returns a list of possible releases to which the requested software instance can be reassigned.
HTTP method	GET
Resource URI	<code>https://server_host_name:port_number/api/sam/swinventory/targetBundlesOfInstances</code>
URL link relation	n/a
URI query parameters	For a list of applicable query parameters, see: "Query parameters" on page 16.
Request headers	<p>Header Accept-Language (optional)</p> <p>Values en-US (only English is supported)</p> <p>Used to negotiate the language of the response. If this header is not specified, the content is returned in the server language.</p>
Request payload	n/a
Request Content-Type	Application/json
Response headers	<p>Header Content-Type</p> <p>Values Application/json</p> <p>Specifies the content type of the response.</p> <hr/> <p>Header Content-Language</p> <p>Values en-US, ...</p> <p>Specifies the language of the response content. If this header is not specified, the content is returned in the server language.</p>
Response payload	targetReleases element
Response Content-Type	Application/json
Normal HTTP response codes	200 – OK
Error HTTP response codes	<p>400 – "Bad Request" if a query parameter contains errors or is missing</p> <p>401 – "Unauthorized" if the user is not authorized to perform the operation</p> <p>404 – "Not Found" if a release or instance of the product or version that is requested does not exist</p> <p>Message body includes an error message with details.</p>

Query parameters

You can use query parameters to narrow down the results of your search. The following table presents query parameters that you can use for the `swinventory/targetBundlesOfInstances` element.

Table 15. Query parameters for retrieving releases to which a software instance can be reassigned

Parameter	Description	Required	Value
productInventoryId	A list of unique product identifiers separated with a comma.	Yes	Numeric
reportGroup	Identifier of the report group to which the computer that has the software installed belongs.	No	Numeric Default: 1
token	A unique user authentication identifier.	Yes	Alphanumeric

Example HTTP conversation

Request

```
GET /api/sam/swinventory/targetBundlesOfInstances
?token=7adc3efb175e2bc0f4484bdd2efca54a8fa04623&productInventoryId=200032 HTTP/1.1
Host: localhost:9080
Accept: application/json
Accept-Language: en-US
```

Response header

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Language: en-US
```

Response body (JSON)

```
[{
  "productId": "69558",
  "isSelected": "false",
  "productInventoryId": "200032",
  "appliedRules": "the relation in the software catalog,
the stand-alone product discovery",
  "productName": "IBM Smart Analytics System 2050 Departmental
Base Remote Standby Server 1.0",
  "id": "69558",
  "branchType": "0",
  "isShared": "false"
}]
```

Retrieval of releases to which a release instance can be reassigned

You use the GET operation on the `swinventory/targetBundlesOfReleases` element to request information about the possible releases to which the instances of the requested software releases can be reassigned.



You must have the Manage IBM Software Classification permission to perform this task.

Table 16. Operation descriptions

Operation details	Description
Operation	GET /swinventory/targetBundlesOfReleases
Purpose	Returns a list of possible releases to which the instances of the requested software releases can be reassigned.
HTTP method	GET
Resource URI	<code>https://server_host_name:port_number/api/sam/swinventory/targetBundlesOfReleases</code>
URL link relation	n/a

Table 16. Operation descriptions (continued)

Operation details	Description
URI query parameters	For a list of applicable query parameters, see: "Query parameters."
Request headers	<p>Header Accept-Language (optional)</p> <p>Values en-US (only English is supported)</p> <p>Used to negotiate the language of the response. If this header is not specified, the content is returned in the server language.</p>
Request payload	n/a
Request Content-Type	Application/json
Response headers	<p>Header Content-Type</p> <p>Values Application/json</p> <p>Specifies the content type of the response.</p> <p>Header Content-Language</p> <p>Values en-US, ...</p> <p>Specifies the language of the response content. If this header is not specified, the content is returned in the server language.</p>
Response payload	targetReleases element
Response Content-Type	Application/json
Normal HTTP response codes	200 – OK
Error HTTP response codes	<p>400 – "Bad Request" if a query parameter contains errors or is missing</p> <p>401 – "Unauthorized" if the user is not authorized to perform the operation</p> <p>404 – "Not Found" if a release or instance of the product or version that is requested does not exist</p> <p>Message body includes an error message with details.</p>

Query parameters

You can use query parameters to narrow down the results of your search. The following table presents query parameters that you can use for the `swinventory/targetBundlesOfReleases` element.

Table 17. Query parameters for retrieving releases to which a release instance can be reassigned

Parameter	Description	Required	Value
confirmed_filter	The state of bundling confirmation. If the parameter is not specified, both confirmed and unconfirmed software instances are displayed.	No	true false
endDate	Discovery end date. If the parameter is not specified, the current date is used.	No	Date in the YYYY-MM-DD format
name_host_filter	The name of the computer on which the software item is installed.	No	String
name_server_filter	The name of the server on which the software item is installed.	No	String

Table 17. Query parameters for retrieving releases to which a release instance can be reassigned (continued)

Parameter	Description	Required	Value
operating_system_filter	Operating system of the computer on which the software item is installed.	No	String
part_number_filter	The part number to which the software item was assigned according to the imported part number list.	No	String
product_release_component_filter	The name of the software product, release, or component.	No	String
releases	A list of unique release identifiers separated with a comma.	Yes	Numeric
reportGroup	Identifier of the report group to which the computer that has the software installed belongs.	No	Numeric Default: 1
startDate	Discovery start date. If the parameter is not specified, the first date that is not covered by a signed audit report is used. If there are no signed reports, the server installation date is used.	No	Date in the YYYY-MM-DD format
token	A unique user authentication identifier.	Yes	Alphanumeric

Example HTTP conversation

Request

```
GET /api/sam/swinventory/targetBundlesOfReleases
?token=7adc3efb175e2bc0f4484bdd2efca54a8fa04623
&releases=64050&startDate=2012-09-29&endDate=2012-10-02 HTTP/1.1
Host: localhost:9080
Accept: application/json
Accept-Language: en-US
```

Response header

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Language: en-US
```

Response body (JSON)

```
[{
  "productId": "72563",
  "isSelected": "false",
  "productInventoryId": "200223",
  "appliedRules": "the relation in the software catalog",
  "productName": "IBM Database Enterprise Developer Edition 10.1",
  "id": "72563",
  "branchType": "0",
  "isShared": "false"
}]
```

Retrieval of instances to reassign to a release

You use the GET operation on the swinventory/targetInstances element to request information about the target instances that can be reassigned to a particular release.



You must have the Manage IBM Software Classification permission to perform this task.

Table 18. Operation descriptions

Operation details	Description
Operation	GET /swinventory/targetInstances
Purpose	Returns a list of target instances that can be reassigned to a particular release.
HTTP method	GET
Resource URI	https://server_host_name:port_number/api/sam/swinventory/targetInstances
URL link relation	n/a
URI query parameters	For a list of applicable query parameters, see: "Query parameters."
Request headers	<p>Header Accept-Language (optional)</p> <p>Values en-US (only English is supported)</p> <p>Used to negotiate the language of the response. If this header is not specified, the content is returned in the server language.</p>
Request payload	n/a
Request Content-Type	Application/json
Response headers	<p>Header Content-Type</p> <p>Values Application/json</p> <p>Specifies the content type of the response.</p> <hr/> <p>Header Content-Language</p> <p>Values en-US, ...</p> <p>Specifies the language of the response content. If this header is not specified, the content is returned in the server language.</p>
Response payload	targetInstances element
Response Content-Type	Application/json
Normal HTTP response codes	200 – OK
Error HTTP response codes	<p>400 – "Bad Request" if a query parameter contains errors or is missing</p> <p>401 – "Unauthorized" if a user is not authorized to perform the operation</p> <p>404 – "Not Found" if a release or instance of the product or version that you requested for does not exist</p> <p>Message body includes an error message with details.</p>

Query parameters

You can use query parameters to narrow down the results of your search. The following table presents query parameters that you can use for the GET/swinventory/targetInstances element.

Table 19. Query parameters for retrieving instances to reassign to a release

Parameter	Description	Required	Value
releaseId	A unique identifier of a release.	Yes	Numeric
reportGroup	Identifier of the report group to which the computer that has the software installed belongs.	No	Numeric Default: 1

Table 19. Query parameters for retrieving instances to reassign to a release (continued)

Parameter	Description	Required	Value
token	A unique user authentication identifier.	Yes	Alphanumeric

Example HTTP conversation

Request

```
GET /api/sam/swinventory/targetInstances
?token=7adc3efb175e2bc0f4484bdd2efca54a8fa04623&releaseId=72717 HTTP/1.1
Host: localhost:9080
Accept: application/json
Accept-Language: en-US
```

Response header

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Language: en-US
```

Response body (JSON)

```
[{
  "componentNameVersion": "IBM Tivoli Directory Server (SP) 6.0",
  "hostname": "Agent20",
  "path": "C:\Documents and Settings\Administrator\Signatures",
  "updateTime": "1349270690593",
  "productInventoryId": "200027",
  "appliedRules": "the relation in the software catalog, the infrastructure co-location",
  "productId": "72717",
  "id": "200027",
  "productNameVersion": "IBM WebSphere Process Server Hypervisor Edition for
Novell SLES for x86 6.2",
  "isShared": "false"
}]
```

Retrieval of instances shared by releases

You use the GET operation on the swinventory/instanceToShare element to request information about the releases that can share a particular instance.



You must have the Manage IBM Software Classification permission to perform this task.

Table 20. Operation descriptions

Operation details	Description
Operation	GET /swinventory/instanceToShare
Purpose	Returns a list of software releases that can share a particular instance.
HTTP method	GET
Resource URI	https://server_host_name:port_number/api/sam/swinventory/instanceToShare
URL link relation	n/a
URI query parameters	For a list of applicable query parameters, see: "Query parameters" on page 21.
Request headers	<p>Header Accept-Language (optional)</p> <p>Values en-US (only English is supported)</p> <p>Used to negotiate the language of the response. If this header is not specified, the content is returned in the server language.</p>
Request payload	n/a

Table 20. Operation descriptions (continued)

Operation details	Description
Request Content-Type	Application/json
Response headers	Header Content-Type Values Application/json Specifies the content type of the response.
	Header Content-Language Values en-US, ... Specifies the language of the response content. If this header is not specified, the content is returned in the server language.
Response payload	targetReleases element
Response Content-Type	Application/json
Normal HTTP response codes	200 – OK
Error HTTP response codes	400 – "Bad Request" if a parameter contains errors or is missing 401 – "Unauthorized" if you are not authorized for the operation 404 – "Not Found" if a release or instance of the product or version that is requested does not exist Message body includes an error message with details.

Query parameters

You can use query parameters to narrow down the results of your search. The following table presents query parameters that you can use for the `swinventory/instanceToShare` element.

Table 21. Query parameters for retrieving an instance shared by releases

Parameter	Description	Required	Value
productInventoryId	A unique identifier of a product.	Yes	Numeric
reportGroup	Identifier of the report group to which the computer that has the software installed belongs.	No	Numeric Default: 1
token	A unique user authentication identifier.	Yes	Alphanumeric

Example HTTP conversation

Request

```
GET /api/sam/swinventory/instanceToShare
?token=7adc3efb175e2bc0f4484bdd2efca54a8fa04623&productInventoryId=200032 HTTP/1.1
Host: localhost:9080
Accept: application/json
Accept-Language: en-US
```

Response header

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Language: en-US
```

Response body (JSON)

```
[{
  "productId": "64050",
  "isSelected": "true",
  "productInventoryId": "200032",
  "appliedRules": "the relation in the software catalog,
the stand-alone product discovery",
  "productName": "IBM Alphablox for Linux, UNIX and Windows 9.5",
  "id": "64050",
  "branchType": "0",
  "isShared": "false"
}]
```

REST API for software classification

You can reduce the time that is needed to manage your software instances in a large environment by using REST API instead of the application user interface. You can use REST API to share instances, include or exclude instances from a pricing calculation, confirm and assign instances, and reassign instances.

Share an instance with more than one product

You use the POST operation on the share element to share an instance of a component with more than one product.



You must have the Manage IBM Software Classification permission to perform this task.

Table 22. Operation descriptions

Operation details	Description
Operation	share
Purpose	Shares an instance with a list of software products.
HTTP method	POST
Resource URI	<code>https://server_host_name:port_number/api/sam/swinventory/share</code>
URL link relation	n/a
URI query parameters	For a list of applicable query parameters, see: Query parameters.
Request headers	Header Accept-Language (optional) Values en-US (only English is supported) Used to negotiate the language of the response. If this header is not specified, the content is returned in the server language.
Request payload	n/a
Request Content-Type	n/a
Response headers	Header Content-Language Values en-US, ... Specifies the language of the response content. If this header is not specified, the content is returned in the server language.
Response payload	n/a
Response Content-Type	n/a
Normal HTTP response codes	204 – No content

Table 22. Operation descriptions (continued)

Operation details	Description
Error HTTP response codes	<p>400 – "Bad Request" if a query parameter contains errors or is missing</p> <p>401 – "Unauthorized" if the user is not authorized to perform the operation</p> <p>404 – "Not Found" if a release or instance of the product or version that the user requested does not exist</p> <p>422 – "Unprocessable Entity" if the request was well-formed but was unable to be followed due to semantic errors</p> <p>Message body includes an error message with details.</p>

Query parameters

You can use query parameters to narrow down the results of your search. The following table presents query parameters that you use for the POST/swinventory/share element.

Table 23. Query parameters for sharing an instance with more than one product

Parameter	Description	Required	Value
productIds	<p>A list of unique product identifiers separated with a comma. At least one identifier must be specified.</p> <p>Use the GET operation on the swinventory/instanceToShare element to get product identifiers.</p>	Yes	Numeric
productInventoryId	A unique identifier of an instance that is shared by products.	Yes	Numeric
token	A unique user authentication identifier.	Yes	Alphanumeric
updateTime	<p>Timestamp of the last modification time of the instance expressed in milliseconds. This parameter is used to handle concurrent actions.</p> <p>Use the GET operation on the swinventory/release/{release_id}/instances element to get the update time.</p>	Yes	Numeric

Example HTTP conversation

Request

```
POST /api/sam/swinventory/share?token=7adc3efb175e2bc0f4484bdd2efca54a8fa04623
&productInventoryId=200032&updateTime=1349237658578&productIds=70665,70656 HTTP/1.1
Host: localhost:9080
Accept-Language: en-US
```

Response header

```
HTTP/1.1 204 OK
Content-Type: application/json
Content-Language: en-US
```

Inclusion of instances in a pricing calculation

You use the POST operation on the include element to include instances in the pricing calculation.



You must have the Manage IBM Software Classification permission to perform this task.

Table 24. Operation descriptions

Operation details	Description
Operation	include
Purpose	Includes instances in a pricing calculation.
HTTP method	POST
Resource URI	https://server_host_name:port_number/api/sam/swinventory/include
URL link relation	n/a
URI query parameters	For a list of applicable query parameters, see: Query parameters.
Request headers	<p>Header Accept-Language (optional)</p> <p>Values en-US (only English is supported)</p> <p>Used to negotiate the language of the response. If this header is not specified, the content is returned in the server language.</p>
Request payload	n/a
Request Content-Type	n/a
Response headers	<p>Header Content-Language</p> <p>Values en-US, ...</p> <p>Specifies the language of the response content. If this header is not specified, the content is returned in the server language.</p>
Response payload	n/a
Response Content-Type	n/a
Normal HTTP response codes	204 – No content
Error HTTP response codes	<p>400 – "Bad Request" if a query parameter contains errors or is missing</p> <p>401 – "Unauthorized" if the user is not authorized to perform the operation</p> <p>404 – "Not Found" if a release or instance of the product or version that the user requested does not exist</p> <p>422 – "Unprocessable Entity" if the request was well-formed but was unable to be followed due to semantic errors</p> <p>Message body includes an error message with details.</p>

Query parameters

You can use query parameters to narrow down the results of your search. The following table presents query parameters that you can use for the POST/swinventory/include element.

Table 25. Query parameters for including instances in pricing calculations

Parameter	Description	Required	Value
product InventoryId	A list of unique identifiers of instances that are to be included in the calculation separated with a comma. At least one identifier must be specified.	Yes	Numeric
token	A unique user authentication identifier.	Yes	Alphanumeric

Table 25. Query parameters for including instances in pricing calculations (continued)

Parameter	Description	Required	Value
updateTime	<p>A list of timestamps of the last modification time of instances expressed in milliseconds. The timestamps are separated with a comma. The first timestamp in the list corresponds to the first instance, and so on. This parameter is used to handle concurrent actions.</p> <p>Use the GET operation on the <code>swinventory/release/{release_id}/instances</code> element to get the update times.</p>	Yes	Numeric

Example HTTP conversation

Request

```
POST /api/sam/swinventory/include?token=7adc3efb175e2bc0f4484bdd2efca54a8fa04623
&productInventoryId=198,300201&updateTime=1349237658578,1349237658588 HTTP/1.1
Host: localhost:9080
Accept-Language: en-US
```

Response header

```
HTTP/1.1 204 OK
Content-Type: application/json
Content-Language: en-US
```

Exclusion of instances from pricing calculations

You use the POST operation on the `exclude` element to exclude instances from pricing calculations.



You must have the Manage IBM Software Classification permission to perform this task.

Table 26. Operation descriptions

Operation details	Description
Operation	<code>exclude</code>
Purpose	Excludes instances from a pricing calculation.
HTTP method	POST
Resource URI	<code>https://server_host_name:port_number/api/sam/swinventory/exclude</code>
URL link relation	n/a
URI query parameters	For a list of applicable query parameters, see: Query parameters.
Request headers	<p>Header <code>Accept-Language</code> (optional)</p> <p>Values <code>en-US</code> (only English is supported)</p> <p>Used to negotiate the language of the response. If this header is not specified, the content is returned in the server language.</p>
Request payload	n/a
Request Content-Type	n/a
Response headers	<p>Header <code>Content-Language</code></p> <p>Values <code>en-US</code>, ...</p> <p>Specifies the language of the response content. If this header is not specified, the content is returned in the server language.</p>

Table 26. Operation descriptions (continued)

Operation details	Description
Response payload	n/a
Response Content-Type	n/a
Normal HTTP response codes	204 – No content
Error HTTP response codes	<p>400 – "Bad Request" if a query parameter contains errors or is missing</p> <p>401 – "Unauthorized" if the user is not authorized to perform the operation</p> <p>404 – "Not Found" if a release or instance of the product or version that the user requested does not exist</p> <p>422 – "Unprocessable Entity" if the request was well-formed but was unable to be followed due to semantic errors</p> <p>Message body excludes an error message with details.</p>

Query parameters

You can use query parameters to narrow down the results of your search. The following table presents query parameters that you can use for the POST/swinventory/exclude element.

Table 27. Query parameters for excluding instances from pricing calculations

Parameter	Description	Required	Value
product InventoryId	A list of unique identifiers of instances to be excluded from the calculation separated with a comma. At least one identifier must be specified.	Yes	Numeric
reason	The reason for excluding an instance from the pricing calculations.	Yes	backup beta component evaluation no_licensing not_compatible other
comment	Additional comments for the reason of exclusion.	Only when reason is other	String
token	A unique user authentication identifier.	Yes	Alphanumeric
updateTime	<p>A list of timestamps of the last modification time of the instances expressed in milliseconds. Each timestamp is separated with a comma. The first timestamp in the list corresponds to the first instance, and so on. This parameter is used to handle concurrent actions.</p> <p>Use the GET operation on the swinventory/release/{release_id}/instances element to get the update times.</p>	Yes	Numeric

Example HTTP conversation

Request

```
POST /api/sam/swinventory/exclude
?token=7adc3efb175e2bc0f4484bdd2efca54a8fa04623
&productInventoryId=300001,500001&updateTime=1349237658578,1349237658588
&reason=no_licensing HTTP/1.1
Host: localhost:9080
Accept-Language: en-US
```

Response header

```
HTTP/1.1 204 OK
Content-Type: application/json
Content-Language: en-US
```

Reassignment of instances to a product

You use the POST operation on the reassign element to reassign instances to a different product.



You must have the Manage IBM Software Classification permission to perform this task.

Table 28. Operation descriptions

Operation details	Description
Operation	reassign
Purpose	Reassigns instances to a different product.
HTTP method	POST
Resource URI	<code>https://server_host_name:port_number/api/sam/swinventory/reassign</code>
URL link relation	n/a
URI query parameters	For a list of applicable query parameters, see: Query parameters.
Request headers	Header Accept-Language (optional) Values en-US (only English is supported) Used to negotiate the language of the response. If this header is not specified, the content is returned in the server language.
Request payload	n/a
Request Content-Type	n/a
Response headers	Header Content-Language Values en-US, ... Specifies the language of the response content. If this header is not specified, the content is returned in the server language.
Response payload	n/a
Response Content-Type	n/a
Normal HTTP response codes	204 – No content

Table 28. Operation descriptions (continued)

Operation details	Description
Error HTTP response codes	<p>400 – "Bad Request" if a query parameter contains errors or is missing</p> <p>401 – "Unauthorized" if the user is not authorized to perform the operation</p> <p>404 – "Not Found" if a release or instance of the product or version that the user requested does not exist</p> <p>422 – "Unprocessable Entity" if the request was well-formed but was unable to be followed due to semantic errors</p> <p>Message body excludes an error message with details.</p>

Query parameters

You can use query parameters to narrow down the results of your search. The following table presents query parameters that you can use for the POST/swinventory/reassign element.

Table 29. Query parameters for reassigning instances to a different product

Parameter	Description	Required	Value
productId	<p>A unique identifier of a product to which the instance is to be reassigned.</p> <p>Use the GET operation on the swinventory/targetBundlesOfInstances element to get product identifiers.</p>	Yes	Numeric
productInventoryId	<p>A list of unique identifiers of instances to be reassigned to a product separated with a comma. At least one identifier must be specified.</p>	Yes	Numeric
updateTime	<p>A list of timestamps of the last modification time of the instances expressed in milliseconds. The timestamps are separated with a comma. The first timestamp in the list corresponds to the first instance, and so on. This parameter is used to handle concurrent actions.</p> <p>Use the GET operation on the swinventory/release/{release_id}/instances element to get the update times.</p>	Yes	Numeric
token	A unique user authentication identifier.	Yes	Alphanumeric

Example HTTP conversation

Request

```
POST /api/sam/swinventory/reassign?token=7adc3efb175e2bc0f4484bdd2efca54a8fa04623
&productInventoryId=200027,300001&productId=72786&updateTime=
1349237658578,1349237658588 HTTP/1.1
Host: localhost:9080
Accept-Language: en-US
```

Response header

```
HTTP/1.1 204 OK
Content-Type: application/json
Content-Language: en-US
```

Reassignment of instances to a product for a list of releases

You use the POST operation on the `reassignRelease` element to reassign instances for a list of releases to a product.



You must have the Manage IBM Software Classification permission to perform this task.

Table 30. Operation descriptions

Operation details	Description
Operation	<code>reassignRelease</code>
Purpose	Reassigns instances to a product for a list of releases.
HTTP method	POST
Resource URI	<code>https://server_host_name:port_number/api/sam/swinventory/reassignRelease</code>
URL link relation	n/a
URI query parameters	For a list of applicable query parameters, see: Query parameters.
Request headers	<p>Header Accept-Language (optional)</p> <p>Values en-US (only English is supported)</p> <p>Used to negotiate the language of the response. If this header is not specified, the content is returned in the server language.</p>
Request payload	n/a
Request Content-Type	n/a
Response headers	<p>Header Content-Language</p> <p>Values en-US, ...</p> <p>Specifies the language of the response content. If this header is not specified, the content is returned in the server language.</p>
Response payload	n/a
Response Content-Type	n/a
Normal HTTP response codes	204 – No content
Error HTTP response codes	<p>400 – "Bad Request" if a query parameter contains errors or is missing</p> <p>401 – "Unauthorized" if the user is not authorized to perform the operation</p> <p>404 – "Not Found" if a release or instance of the product or version that the user requested does not exist</p> <p>422 – "Unprocessable Entity" if the request was well-formed but was unable to be followed due to semantic errors</p> <p>Message body excludes an error message with details.</p>

Query parameters

You can use query parameters to narrow down the results of your search. The following table presents query parameters that you can use for the `POST/swinventory/reassignRelease` element.

Table 31. Query parameters for retrieving instances to reassign to a release

Parameter	Description	Required	Value
endDate	Discovery end date. If the parameter is not specified, the current date is used.	No	Date in the YYYY-MM-DD format
name_host_filter	The name of the computer on which the software item is installed.	No	String
name_server_filter	The name of the server on which the software item is installed.	No	String
operating_system_filter	Operating system of the computer on which the software item is installed.	No	String
part_number_filter	The part number to which the software item was assigned according to the imported part number list.	No	String
product_release_component_filter	The name of the software product, release, or component.	No	String
productId	A unique identifier of a product to which the instance is to be assigned. Use the GET operation on the <code>swinventory/targetBundlesOfReleases</code> element to get product identifiers.	Yes	Numeric
releases	A list of unique release identifiers separated with a comma. At least one identifier must be specified.	Yes	Numeric
startDate	Discovery start date. If the parameter is not specified, the first date that is not covered by a signed audit report is used. If there are no signed reports, the server installation date is used.	No	Date in the YYYY-MM-DD format
token	A unique user authentication identifier.	Yes	Alphanumeric

Example HTTP conversation

Request

```
POST /api/sam/swinventory/reassignRelease
?token=7adc3efb175e2bc0f4484bdd2efca54a8fa04623
&releases=67757,95947&productId=67756&startDate=2012-09-29&endDate=2012-10-02
Host: localhost:9080
Accept-Language: en-US
```

Response header

```
HTTP/1.1 204 OK
Content-Type: application/json
Content-Language: en-US
```

Confirmation of instances to bundle or assign

You use the POST operation on the `confirm` element to confirm the bundling or assignment of instances.



You must have the Manage IBM Software Classification permission to perform this task.

Table 32. Operation descriptions

Operation details	Description
Operation	<code>confirm</code>

Table 32. Operation descriptions (continued)

Operation details	Description
Purpose	Confirms the bundling or assignment of instances.
HTTP method	POST
Resource URI	<code>https://server_host_name:port_number/api/sam/swinventory/confirm</code>
URL link relation	n/a
URI query parameters	For a list of applicable query parameters, see: Query parameters.
Request headers	<p>Header Accept-Language (optional)</p> <p>Values en-US (only English is supported)</p> <p>Used to negotiate the language of the response. If this header is not specified, the content is returned in the server language.</p>
Request payload	n/a
Request Content-Type	n/a
Response headers	<p>Header Content-Language</p> <p>Values en-US, ...</p> <p>Specifies the language of the response content. If this header is not specified, the content is returned in the server language.</p>
Response payload	n/a
Response Content-Type	n/a
Normal HTTP response codes	204 – No content
Error HTTP response codes	<p>400 – "Bad Request" if a query parameter contains errors or is missing</p> <p>401 – "Unauthorized" if the user is not authorized to perform the operation</p> <p>404 – "Not Found" if a release or instance of the product or version that the user requested does not exist</p> <p>422 – "Unprocessable Entity" if the request was well-formed but was unable to be followed due to semantic errors</p> <p>Message body excludes an error message with details.</p>

Query parameters

You can use query parameters to narrow down the results of your search. The following table presents query parameters that you can use for the `POST/swinventory/confirm` element.

Table 33. Query parameters for confirming instances

Parameter	Description	Required	Value
product InventoryId	A list of unique identifiers of instances to be confirmed separated with a comma. At least one identifier must be specified.	Yes	Numeric

Table 33. Query parameters for confirming instances (continued)

Parameter	Description	Required	Value
updateTime	A list of timestamps of the last modification time of instances expressed in milliseconds. The timestamps are separated with a comma. The first timestamp in the list corresponds to the first instance, and so on. This parameter is used to handle concurrent actions. Use the GET operation on the <code>swinventory/release/{release_id}/instances</code> element to get the update times.	Yes	Numeric
token	A unique user authentication identifier.	Yes	Alphanumeric

Example HTTP conversation

Request

```
POST /api/sam/swinventory/confirm?token=7adc3efb175e2bc0f4484bdd2efca54a8fa04623
&productInventoryId=200027,300001&updateTime=1349237658578,1349237658588 HTTP/1.1
Host: localhost:9080
Accept-Language: en-US
```

Response header

```
HTTP/1.1 204 OK
Content-Type: application/json
Content-Language: en-US
```

Confirmation of the assignment of instances for a release

You use the POST operation on the `confirmRelease` element to confirm the assignment of instances for a release.



You must have the Manage IBM Software Classification permission to perform this task.

Operation details	Description
Operation	<code>confirmRelease</code>
Purpose	Confirms assignment of instances for a release.
HTTP method	POST
Resource URI	<code>https://server_host_name:port_number/api/sam/swinventory/confirmRelease</code>
URL link relation	n/a
URI query parameters	No
Request headers	<p>Header <code>Accept-Language</code> (optional)</p> <p>Values <code>en-US</code> (English language only supported)</p> <p>Used to negotiate the language of the response. If this header is not specified, the content is returned in the server language.</p>
Request payload	n/a
Request Content-Type	n/a

Operation details	Description
Response headers	<p>Header Content-Language</p> <p>Values en-US, ...</p> <p>Specifies the language of the response content. If this header is not specified, the content is returned in the server language.</p>
Response payload	n/a
Response Content-Type	n/a
Normal HTTP response codes	204 – No content
Error HTTP response codes	<p>400 – "Bad Request" if a query parameter contains errors or is missing</p> <p>401 – "Unauthorized" if the user is not authorized to perform the operation</p> <p>404 – "Not Found" if a release or instance of the product or version that the user requested does not exist</p> <p>422 – "Unprocessable Entity" if the request was well-formed but was unable to be followed due to semantic errors</p> <p>Message body excludes an error message with details.</p>

Query parameters

The following table presents query parameters that you can use for the POST/swinventory/confirmRelease element.

Parameter	Description	Required	Value
endDate	Discovery end date. If the parameter is not specified, the current date is used.	No	Date in the YYYY-MM-DD format
name_host_filter	The name of the computer on which the software item is installed	No	String
name_server_filter	The name of the server on which the software item is installed	No	String
operating_system_filter	Operating system of the computer on which the software item is installed	No	String
part_number_filter	The part number to which the software item was assigned according to the imported part number list.	No	String
product_release_component_filter	The name of a software product, software release, or a component	No	String
releases	A list of unique release identifiers. Each identifier is separated by a comma. At least one ID must be entered	Yes	Numeric
startDate	Discovery start date. If the parameter is not specified, the first date that is not covered by a signed audit report is used. If there are no signed reports, the server installation date is used.	No	Date in the YYYY-MM-DD format
token	A unique user authentication identifier.	Yes	Alphanumeric

Example HTTP conversation

Request

```
POST /api/sam/swinventory/confirmRelease
?token=7adc3efb175e2bc0f4484bdd2efca54a8fa04623&releases=95185
&startDate=2012-10-18&endDate=2013-01-26 HTTP/1.1
Host: localhost:9080
Accept-Language: en-US
```

Response header

```
HTTP/1.1 204 OK
Content-Type: application/json
Content-Language: en-US
```

REST API for administration server settings

Settings of the Software Use Analysis server are modified by using REST API.

Retrieval of the administration server settings

You use the GET operation on the configs element to request information about current settings of the Software Use Analysis server.

Table 34. Operation descriptions

Operation details	Description
Operation	GET /configs
Purpose	Returns information about the current settings of the administration server.
HTTP method	GET
Resource URI	<code>https://server_host_name:port_number/api/sam/configs</code>
URL link relation	n/a
URL query parameters	For a list of query parameters, see: Query parameters.
Request headers	Header Accept-Language (optional) Values en-US (only English is supported) Used to negotiate the language of the response. If this header is not specified, the content is returned in the server language.
Request payload	n/a
Request Content-Type	Application/json
Response headers	Header Content-Type Values Application/json Specifies the content type of the response. Header Content-Language Values en-US, ... Specifies the language of the response content. If this header is not specified, the content is returned in the server language.
Response payload	configs element
Response Content-Type	Application/json
Normal HTTP response codes	n/a
Error HTTP response codes	n/a

Query parameters

The following table presents query parameters that you can use for the configs element.

Table 35. Query parameters for retrieving server settings

Parameter	Description	Required	Value
name	Returns the configuration of a single parameter. Possible values are: calculateLicenseUsageForIncompleteComputers computerVmManagerDetachmentPeriod csvReportSeparator maxWaitingForVMData maxVMManagerInactivity numberOfImportThreads storeHwDataForAllVMManagerNodes tempPathForGeneratedFiles vmManagerPostprocessGuestEnabled vmman_check_uniqueness_enabled vmman_connection_time_out vmman_max_subsequent_login_failures vmman_thread_pool_size vmman_pooling_time_interval vmman_transfer_period vmman_uuid_filtering_enabled	No	Name of the parameter
token	A unique user authentication identifier.	Yes	Alphanumeric

Example HTTP conversation

Request

```
GET https://localhost:9081/api/sam/configs?token=7adc3efb175e2bc0f4484bdd2efca54a8fa04623&name=maxVMManagerInactivity
```

Response body (JSON)

```
[  
  {"name": "maxVMManagerInactivity",  
   "value": "3",  
   "valueType": "days",  
   "valueMax": 90,  
   "valueMin": 1}  
]
```

Configuration of the administration server settings

You use the PUT operation on the configs element to change settings of the Software Use Analysis server.



You must be an Administrator to perform this task.

Table 36. Operation descriptions

Operation details	Description
Operation	PUT /configs
Purpose	Changes the current settings of the administration server.
HTTP method	PUT
Resource URI	https://server_host_name:port_number/api/sam/configs
URL link relation	n/a
URL query parameters	For a list of query parameters, see: Query parameters.

Table 36. Operation descriptions (continued)

Operation details	Description
Request headers	<p>Header Accept-Language (optional)</p> <p>Values en-US (only English is supported)</p> <p>Used to negotiate the language of the response. If this header is not specified, the content is returned in the server language.</p>
Request payload	n/a
Request Content-Type	Application/json
Response headers	<p>Header Content-Type</p> <p>Values Application/json</p> <p>Specifies the content type of the response.</p> <hr/> <p>Header Content-Language</p> <p>Values en-US, ...</p> <p>Specifies the language of the response content. If this header is not specified, the content is returned in the server language.</p>
Response payload	configs element
Response Content-Type	Application/json
Normal HTTP response codes	n/a
Error HTTP response codes	n/a

Query parameters

The following table presents query parameters that you can use for the configs element.

Table 37. Query parameters for changing server settings

Parameter	Description	Required	Value
name	<p>Specifies the parameter whose value is to be changed.</p> <p>Possible values are:</p> <p><code>calculateLicenseUsageForIncompleteComputers</code> <code>computerVmManagerDetachmentPeriod</code> <code>csvReportSeparator</code> <code>maxWaitingForVMData</code> <code>maxWMMManagerInactivity</code> <code>numberOfImportThreads</code> <code>storeHwDataForAllVMMManagerNodes</code> <code>tempPathForGeneratedFiles</code> <code>vmManagerPostprocessGuestEnabled</code> <code>vmman_check_uniqueness_enabled</code> <code>vmman_connection_time_out</code> <code>vmman_max_subsequent_login_failures</code> <code>vmman_thread_pool_size</code> <code>vmman_pooling_time_interval</code> <code>vmman_transfer_period</code> <code>vmman_uuid_filtering_enabled</code></p>	Yes	Name of the parameter
token	A unique user authentication identifier.	Yes	Alphanumeric

Table 37. Query parameters for changing server settings (continued)

Parameter	Description	Required	Value
value	Specifies the value of the parameter that you want to change.	Yes	Value that is within the range specific for the parameter.

Example HTTP conversation

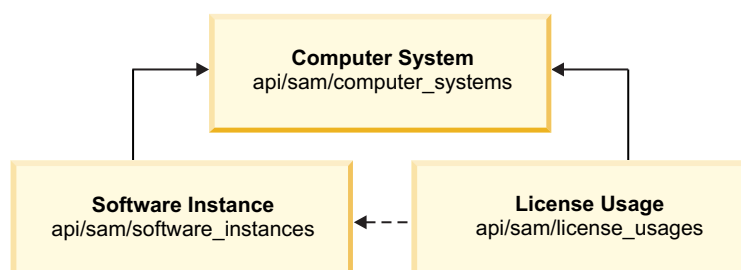
Request

```
PUT http://localhost:9981/api/sam/configs
?token=7adc3efb175e2bc0f4484bdd2efca54a8fa04623&name=maxVMMManagerInactivity&value=30
```

REST API for retrieving computer systems, software instances, and license usage

You can use this REST API to quickly retrieve large amounts of data related to your computer systems, software instances, and license usage. Once the data is retrieved, it can be passed to other applications for further processing and analysis.

The following image represents the relations between all resources included in this REST API:



Scenarios

Choose one of the scenarios to learn how to determine the license usage for all of your computer systems or only for the selected ones. The first approach is recommended if you want to retrieve your data in bulk and calculate the license usage for the whole environment. The second one, however, allows you to quickly target specific information by retrieving data for a chosen subset of computer systems.

Determining license usage for all computer systems:

You can extract your data in bulk to determine total license usage for software on all your computer systems. Instead of using reports in the application user interface, you can make API requests to quickly retrieve large amounts of data.

Before you begin

- Each API request (URL) must be authenticated with the **token** parameter. You can either retrieve it by using REST API for retrieving authentication token or you can view it in the **Profile** preferences of Software Use Analysis.
- To obtain the list of query parameters to narrow down your results and the list of available columns, see the information related to a particular API type.

Performance considerations

- Retrieving large amounts of data might impact the performance of your environment, therefore API should not be used together with other performance intensive tasks, like data imports. For more information, see Scalability guidelines.

- Retrieve your data in pages rather than query for each computer ID separately. You can make several API requests and use the **limit** and **offset** parameters to paginate your results.

Note:

- For environments with approximately 200 000 endpoints, it is recommended to retrieve your data in pages of 100 000 rows for computer systems, 200 000 rows for software instances, and 300 000 rows for license usage. If you limit the first request to 100 000 results, append the next request with the **offset=100000** parameter to omit the already retrieved records. Adjust the values according to the size of your deployment.
- If you have a small number of endpoints, you can omit the **limit** and **offset** parameters, and retrieve your data by using only one API request.

Procedure

1. Retrieve the list of your computer systems:

```
https://hostname:port/api/sam/computer_systems?
token=token&limit=100000&offset=100000
```

Result: Each computer system has a different id. You can later use this id to create a match between your software instances and computer systems.

```
{
  "id": 182,
  "parent_id": 175,
  "type": "virtual",
  "os": "Win2008R2 6.1.7601",
  "host_name": "NC9128109187",
  "dns_name": "NC9128109187",
  "ip_address": [
    "9.128.109.187"],
  "last_seen": "2014-06-06T03:56:39Z",
  "hardware_manufacturer": "-",
  "hardware_model": "-",
  "hardware_serial_number": "TLM_VM_4236ac43",
  "processor_type": "Multi-core",
  "processor_brand": "Xeon(R), 3 or 4 Socket",
  "processor_vendor": "Intel(R)",
  "processor_model": "E3-12xx, E7-28xx, E7-48xx",
  "partition_cores": "1.0",
  "server_processors": 1,
  "server_cores": 1
}
```

2. Retrieve the list of your software instances. The software_title_name column that allows you to recognize the name of your software is hidden by default, which means that you have to append the URL with the **columns[]** parameter followed by the name of a hidden column.

The following example retrieves the computer_system_id and software_title_name columns so that you can recognize which software is installed on which computer system. If you want to retrieve complete information, append the URL with the names of all columns. You can find the column names in response body:

```
https://hostname:port/api/sam/software_instances?
token=token&limit=100000&offset=100000&
columns[]=computer_system_id&columns[]=catalog_dimension.software_title_name
```

Result: Each software instance contains a computer_system_id column that represents an ID of a computer that a particular instance is installed on. Use this column to match your software instances with computer systems. For example, if rows 152-155 contain a computer_system_id=182 column, it means that all those software instances are installed on a computer system with ID 182.

```
{
  "computer_system_id": 182,
  "catalog_dimension": {
    "software_title_name": "IBM Endpoint Manager for Software Use Analysis"
  }
}
```

3. Retrieve the license usage information. Append the URL with the `software_title_dimension.name` column to be able to recognize the name of the software that the license usage is presented for.

The following example retrieves the `computer_system_id`, `metric_name`, `peak_value`, and `software_title_dimension.name` columns. If you want to retrieve complete information, append the URL with the names of all columns. You can find the column names in response body:

```
https://hostname:port/api/sam/license_usages?
token=token&limit=100000&offset=100000&
columns[]=computer_system_id&columns[]=metric_name&columns[]=peak_value&
columns[]=software_title_dimension.name
```

Result: Each record contains a `computer_system_id` column that represents an ID of a computer for which the license usage is calculated. Use this column to match the license usage with computer systems. For example, if rows 152-155 contain a `computer_system_id=182` column, it means that all those license usage records are presented for a computer system with ID 182. The `peak_value` column represents the peak license usage (over last 90 days) for a particular software title (which is described by `software_title_dimension.name`). The `metric_name` column allows you to recognize whether the license type is PVU or RVU, full or subcapacity.

```
{
  "computer_system_id": 182,
  "metric_name": "RVU_FULL_CAP",
  "peak_value": 2,
  "software_title_dimension": {
    "name": "IBM Endpoint Manager for Software Use Analysis"
  }
},
{
  "computer_system_id": 182,
  "metric_name": "RVU_SUB_CAP",
  "peak_value": 2,
  "software_title_dimension": {
    "name": "IBM Endpoint Manager for Software Use Analysis"
  }
}
```

4. Determine the total license usage for a software title by summing up the values of all `peak_value` columns retrieved for this software title from all your computer systems. For example, sum up all `peak_values` for IBM® Endpoint Manager for Software Use Analysis on all computer systems that contain entries for this particular software. Do not combine the metric types, but calculate the `PVU_FULL_CAP`, `RVU_FULL_CAP`, `PVU_SUB_CAP`, and `RVU_SUB_CAP` separately.

Determining license usage for selected computer systems:

You can narrow down the results of your API requests to retrieve data only from selected computer systems. This approach is recommended if you want to quickly target specific information.

Before you begin

- Each API request (URL) must be authenticated with the **token** parameter. You can either retrieve it by using REST API for retrieving authentication token or you can view it in the **Profile** preferences of Software Use Analysis.
- To obtain the list of query parameters to narrow down your results and the list of available columns, see the information related to a particular API type.

Procedure

1. Retrieve selected computer systems by querying for their ID:

```
https://hostname:port/api/sam/computer_systems?
token=token&criteria={"or":[{"id","=", "1"}, {"id","=", "2"}]}
```

Result: Each computer system has a different id. You can later use this id to create a match between your software instances and computer systems. In API for software instances and license usage, this id is represented by the `computer_system_id` column.

```
{
  "id": 2,
  "parent_id": 175,
  "type": "virtual",
  "os": "Win2008R2 6.1.7601",
  "host_name": "NC9128109187",
  "dns_name": "NC9128109187",
  "ip_address": [
    "9.128.109.187"],
  "last_seen": "2014-06-06T03:56:39Z",
  "hardware_manufacturer": "-",
  "hardware_model": "-",
  "hardware_serial_number": "TLM_VM_4236ac43",
  "processor_type": "Multi-core",
  "processor_brand": "Xeon(R), 3 or 4 Socket",
  "processor_vendor": "Intel(R)",
  "processor_model": "E3-12xx, E7-28xx, E7-48xx",
  "partition_cores": "1.0",
  "server_processors": 1,
  "server_cores": 1
}
```

2. Retrieve software instances for selected computer systems by querying for their ID:

The following example retrieves the `computer_system_id` and `software_title_name` columns so that you can recognize which software is installed on which computer system. If you want to retrieve complete information, append the URL with the names of all columns. You can find the column names in response body:

```
https://hostname:port/api/sam/software_instances?
token=token&
criteria={"or":[{"computer_system_id","=", "1"}, {"computer_system_id","=", "2"}]}
&columns[]=computer_system_id&columns[]=catalog_dimension.software_title_name
```

Result: Each software instance contains a `computer_system_id` column that represents an ID of a computer that a particular instance is installed on. Use this column to match your software instances with computer systems. For example, if rows 152-155 contain a `computer_system_id=2` column, it means that all those software instances are installed on a computer system with ID 2.

```
{
  "computer_system_id": 2,
  "catalog_dimension": {
    "software_title_name": "IBM Endpoint Manager for Software Use Analysis"
  }
}
```

3. Retrieve the license usage for selected computer systems by querying for their ID. Append the URL with the `software_title_dimension.name` column to be able to recognize the name of the software that the license usage is presented for.

The following example retrieves the `computer_system_id`, `metric_name`, `peak_value`, and `software_title_dimension.name` columns. If you want to retrieve complete information, append the URL with the names of all columns. You can find the column names in response body:

```
https://hostname:port/api/sam/license_usages?
token=token&
criteria={"or":[{"computer_system_id","=", "1"}, {"computer_system_id","=", "2"}]}
&columns[]=computer_system_id&columns[]=metric_name&columns[]=peak_value&
columns[]=software_title_dimension.name
```

Result: Each record contains a `computer_system_id` column that represents an ID of a computer for which the license usage is calculated. Use this column to match the license usage with computer systems. For example, if rows 152-155 contain a `computer_system_id=2` column, it means that all those

license usage records are presented for a computer system with ID 2. The `peak_value` column represents the peak license usage (over last 90 days) for a particular software title (which is described by `software_title_dimension.name`). The `metric_name` column allows you to recognize whether the license type is PVU or RVU, full or subcapacity.

```
{
  "computer_system_id": 2,
  "metric_name": "RVU_SUB_CAP",
  "peak_value": 2,
  "software_title_dimension": {
    "name": "IBM Endpoint Manager for Software Use Analysis"
  }
}
```

Results

You retrieved the list of software instances that are installed on a particular computer system, as well as the license usage that they generate. This information is only a part of the total license usage generated on all your computer systems. To determine the total license usage for your environment, see [Determining license usage for all computer systems](#).

Retrieval of computer systems

You use the GET operation on the `api/sam/computer_systems` element to request information about computer systems in your infrastructure.

This API retrieves information about physical and virtual computer systems. Apart from computers that have an IBM Endpoint Manager client installed, it also includes host systems on which the client is not deployed because some virtualization types do not allow for software to be installed on the host level (VMware ESXi, IBM PowerVM, and so on). Data related to such host computer systems must however be retrieved to build a proper hierarchy between the server and its virtual machines and to correctly report the PVU and RVU utilization. The `type` property determines whether a computer system is a host computer or a virtual one. To retrieve information about your computer systems, use the following URL:

`https://hostname:port/api/sam/computer_systems?token=token`

Important:

- Each of your API requests must be authenticated with the **token** parameter. You can either retrieve it by using REST API for retrieving authentication token or you can view it in the **Profile** preferences of Software Use Analysis.
- By default, the data retrieved is sorted by `id`.

Table 38. Operation descriptions

Operation details	Description
Operation	GET /api/sam/computer_systems
Purpose	Returns a list of computer systems.
HTTP method	GET
Resource URI	<code>https://server_host_name:port_number/api/sam/computer_systems</code>
URL link relation	n/a
URI query parameters	For a list of applicable query parameters, see: Query parameters .
Request headers	<p>Header Accept-Language (optional)</p> <p>Values en-US (only English is supported)</p> <p>Used to negotiate the language of the response. If this header is not specified, the content is returned in the server language.</p>
Request payload	n/a

Table 38. Operation descriptions (continued)

Operation details	Description
Request Content-Type	application/json
Response headers	<p>Header Content-Type</p> <p>Values application/json</p> <p>Specifies the content type of the response.</p>
	<p>Header Content-Language</p> <p>Values en-US, ...</p> <p>Specifies the language of the response content. If this header is not specified, the content is returned in the server language.</p>
	<p>Header Import-Mode</p> <p>Values none, idle, running, pending</p> <p>Specifies the data import status.</p>
	<p>Header Import-Progress</p> <p>Values A percentage value, for example 59.</p> <p>Specifies the percentage progress of a data import.</p>
	<p>Header Import-Last-Status</p> <p>Values successful, failed</p> <p>Specifies the status of the last data import.</p>
	<p>Header Import-Last-Success-Time</p> <p>Values Date, for example 2014-06-18T04:00:29Z.</p> <p>Specifies the time of the last successful data import.</p>
Response payload	Computer Systems element
Response Content-Type	application/json
Normal HTTP response codes	200 – OK
Error HTTP response codes	<p>500 – "Bad Request" if a query parameter contains errors or is missing</p> <p>Message body includes an error message with details.</p>

Query parameters

You can use query parameters to narrow down the results of your search. The following table presents query parameters that you can use for the `api/sam/computer_systems` element.

Table 39. Query parameters for retrieving software products

Parameter	Description	Required	Value
columns[]	Specify which columns to retrieve. If you do not specify this parameter, a set of default columns is retrieved. Example: Retrieve the name and version columns: <i>URL?columns[]=name&columns[]=version</i>	No	String
order	Specify how to sort the returned data. The default direction for sorting columns is ascending. If you want to specify a descending sort, append desc to the column name. Example: Order by type descending: <i>URL?order[]=type desc</i>	No	String
limit	Specify the number of rows to retrieve. If you omit this parameter, all rows are retrieved.	No	Numeric
offset	Specify the number of rows to skip for retrieving results. You can use it together with the limit parameter to paginate results. Example: Retrieve 50 records starting after record 150: <i>URL?limit=50&offset=150</i>	No	Numeric
token	A unique user authentication identifier. You can view your token in the Profile preferences of Software Use Analysis.	Yes	Alphanumeric

criteria

Retrieve records which match specific conditions. The parameter should have the following structure, written on one line:

```
<criteria> ::= <left-brace> <boolean-operator><colon> <left-bracket>
<criteria> [{ <comma> <criteria> }...] <right-bracket> <right-brace>
<boolean-operator> ::= "and" | "or"
<criteria> ::= <criteria> | <left-bracket> <column> <comma> <operator> <comma> <value> <right-bracket>
<column> ::= <json-string>
<operator> ::= <json-string>
<value> ::= <json-array> | <json-string> | <json-numver> | <json-null>
```

Example: Retrieve computer systems whose operating system contains "AIX" OR the last seen date within a specific date range:

```
URL?criteria={ "or": [ ["os", "contains", "aix"], { "and": [ ["last_seen", ">", "1970-01-01T00:00:00+00:00Z"], ["last_seen", "<", "1970-01-02T00:00:00+00:00Z"] ] } ] }
```

Example HTTP conversation

Request

```
GET api/sam/computer_systems
?token=7adc3efb175e2bc0f4484bdd2efca54a8fa04623
Host: localhost:9081
Accept: application/json
Accept-Language: en-US
```

Response header

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Language: en-US
```

The above response header may be followed by different entries, depending on the current status of the data import which is represented by Import-Mode. To understand the returned values, see the following definitions:

- none - a data import has never been initiated
- idle - no data imports are currently running
- running - a data import is in progress
- pending - an action performed in the user interface requires a data import to be started for the change to take effect

If a data import has never been initiated:

Import-Mode: none

If a data import is in progress:

Import-Mode: running

Import-Progress: 41

If a data import is not running:

Import-Mode: idle/pending

Import-Last-Status: successful

Import-Last-Success-Time: Mon, 23 Jun 2014 12:18:29 GMT

Response body (JSON)

If a particular entry is hidden by default, it is not retrieved by using the general URL. To retrieve such data, you must use query parameters to specify the name of the hidden column. For example, you can retrieve the `server_id` and `datasource_id` columns by using the `columns[]` parameter:

```
URL?columns[]=server_id&columns[]=datasource_id
{
  "id": 25,
  "computer_id": 2, //hidden by default
  "computer_remote_id": 123, //hidden by default
  "server_id": 24, //hidden by default
  "datasource_name": "Data source", //hidden by default
  "datasource_id": 1, //hidden by default
  "last_seen": "2014-04-08T14:33:41Z",
  "dns_name": "NC040221.kraklab.pl.ibm.com",
  "host_name": "NC040221",
  "ip_address": [
    "9.167.40.221",
    "192.168.122.1" ],
  "partition_cores" : 1, //null for host serves
  "hardware_manufacturer": "IBM",
  "hardware_model": "System x3550 M2 -[794662G]-",
  "hardware_serial_number": "99B7166",
  "hardware_type": "7946", //hidden by default
  "hardware_name": "IBM Corp. 7946", //hidden by default
  "processor_type": "Multi-core",
  "processor_brand": "Xeon(R)",
  "processor_vendor": "Intel(R)",
  "processor_model": "3400-3699 or 5500-5699",
  "server_processors": 1,
  "server_cores": 8,
  "pvu_per_core": 70, //hidden by default
  "os": "Linux Red Hat Enterprise Server 6.2)",
  "type": "virtual", //type: virtual or host
  "parent_id": 9, //ID of a host for a VM
  "uuid": "50305bd3-1f09-7294-7033-b903767d4605" //hidden by default
}
```

Retrieval of software instances

You use the GET operation on the `api/sam/software_instances` element to request information about software installed in your infrastructure.

To retrieve information about software instances installed on your computer systems, use the following URL:

`https://hostname:port/api/sam/software_instances?token=token`

Important:

- Each of your API requests must be authenticated with the **token** parameter. You can either retrieve it by using REST API for retrieving authentication token or you can view it in the **Profile** preferences of Software Use Analysis.
- By default, the data retrieved is sorted by `id`.

Table 40. Operation descriptions

Operation details	Description
Operation	GET /api/sam/software_instances
Purpose	Returns a list of software.
HTTP method	GET
Resource URI	<code>https://server_host_name:port_number/api/sam/software_instances</code>
URL link relation	n/a
URI query parameters	For a list of applicable query parameters, see: Query parameters.
Request headers	Header Accept-Language (optional) Values en-US (only English is supported) Used to negotiate the language of the response. If this header is not specified, the content is returned in the server language.
Request payload	n/a
Request Content-Type	application/json

Table 40. Operation descriptions (continued)

Operation details	Description
Response headers	Header Content-Type Values application/json Specifies the content type of the response.
	Header Content-Language Values en-US, ... Specifies the language of the response content. If this header is not specified, the content is returned in the server language.
	Header Import-Mode Values none, idle, running, pending Specifies the data import status.
	Header Import-Progress Values A percentage value, for example 59. Specifies the percentage progress of a data import.
	Header Import-Last-Status Values successful, failed Specifies the status of the last data import.
	Header Import-Last-Success-Time Values Date, for example 2014-06-18T04:00:29Z. Specifies the time of the last successful data import.
Response payload	Software Instances element
Response Content-Type	application/json
Normal HTTP response codes	200 – OK
Error HTTP response codes	500 – "Bad Request" if a query parameter contains errors or is missing Message body includes an error message with details.

Query parameters

You can use query parameters to narrow down the results of your search. The following table presents query parameters that you can use for the `api/sam/software_instances` element.

Table 41. Query parameters for retrieving software products

Parameter	Description	Required	Value
<code>columns[]</code>	Specify which columns to retrieve. If you do not specify this parameter, a set of default columns is retrieved. Example: Retrieve the name and version columns: <code>URL?columns[]=name&columns[]=version</code>	No	String

Table 41. Query parameters for retrieving software products (continued)

Parameter	Description	Required	Value
order	Specify how to sort the returned data. The default direction for sorting columns is ascending. If you want to specify a descending sort, append desc to the column name. Example: Order by computer system ID descending: <i>URL?order[]=computer_system_id desc</i>	No	String
limit	Specify the number of rows to retrieve. If you omit this parameter, all rows are retrieved.	No	Numeric
offset	Specify the number of rows to skip for retrieving results. You can use it together with the limit parameter to paginate results. Example: Retrieve 50 records starting after record 150: <i>URL?limit=50&offset=150</i>	No	Numeric
token	A unique user authentication identifier. You can view your token in the Profile preferences of Software Use Analysis.	Yes	Alphanumeric

criteria

Retrieve records which match specific conditions. The parameter should have the following structure, written on one line:

```
<criteria> ::= <left-brace> <boolean-operator><colon> <left-bracket>
<criterion> [{ <comma> <criterion> }...] <right-bracket> <right-brace>
<boolean-operator> ::= "and" | "or"
<criterion> ::= <criteria> | <left-bracket> <column> <comma> <operator> <comma> <value> <right-bracket>
<column> ::= <json-string>
<operator> ::= <json-string>
<value> ::= <json-array> | <json-string> | <json-numver> | <json-null>
```

Example: Retrieve computer systems whose operating system contains "AIX" OR the last seen date within a specific date range:

```
URL?criteria={ "or": [ ["os", "contains", "aix"], { "and": [ ["last_seen", ">", "1970-01-01T00:00:00+00:00Z"], ["last_seen", "<", "1970-01-02T00:00:00+00:00Z"] ] } ] }
```

Example HTTP conversation

Request

```
GET api/sam/software_instances
?token=7adc3efb175e2bc0f4484bdd2efca54a8fa04623
Host: localhost:9081
Accept: application/json
Accept-Language: en-US
```

Response header

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Language: en-US
```

The above response header may be followed by different entries, depending on the current status of the data import which is represented by Import-Mode. To understand the returned values, see the following definitions:

- none - a data import has never been initiated
- idle - no data imports are currently running
- running - a data import is in progress

- pending - an action performed in the user interface requires a data import to be started for the change to take effect

If a data import has never been initiated:

Import-Mode: none

If a data import is in progress:

Import-Mode: running

Import-Progress: 41

If a data import is not running:

Import-Mode: idle/pending

Import-Last-Status: successful

Import-Last-Success-Time: Mon, 23 Jun 2014 12:18:29 GMT

Response body (JSON)

If a particular entry is hidden by default, it is not retrieved by using the general URL. To retrieve such data, you must use query parameters to specify the name of the hidden column. For example, you can retrieve the `computer_id` and `software_title_name` columns by using the `columns[]` parameter:

`URL?columns[]=computer_id&columns[]=catalog_dimension.software_title_name`

```
{
  "id": 123,
  "software_fact_id": 123, //hidden by default
  "computer_system_id": 3,
  "computer_id": 3, //hidden by default
  "discoverable_guid": "0768fb15-383c-4124-a7e2-0d76dda06874",
  "default_product_guid": "78d380e0-9fb9-11e3-a151-005056872dc7", // hidden by default
  "first_used": null,
  "last_used": null,
  "valid_from": "2014-04-02T14:24:04Z",
  "valid_to": "9999-12-31T23:59:59Z",
  "updated_at": "2014-04-02T14:24:04Z",
  "signature_count": 1,
  "total_time": 0,
  "total_runs": 0,
  "avg_run_time": null,
  "avg_runs_per_day": null,
  "process": null,
  "deleted": false, //hidden by default
  "catalog_dimension": //hidden by default
    {
      "software_title_name": "IBM Endpoint Manager Platform Agent",
      "publisher_name": "IBM",
      "software_title_version_name": "IBM Endpoint Manager Platform Agent",
      "software_title_release_name": "IBM Endpoint Manager Platform Agent",
      "version": "9.0"
    }
}
```

Retrieval of license usage

You use the GET operation on the `api/sam/license_usages` element to request information about license usage reported by your computer systems.

This API retrieves peak license usage over the last 90 days. PVU and RVU full capacity and subcapacity license usage is retrieved only on the host computer system level. To retrieve information about license usage reported by your computer systems, use the following URL:

`https://hostname:port/api/sam/license_usages?token=token`

Important:

- Each of your API requests must be authenticated with the **token** parameter. You can either retrieve it by using REST API for retrieving authentication token or you can view it in the **Profile** preferences of Software Use Analysis.
- This API retrieves data for the last 90 days, until the last successful import.
- By default, the data retrieves is sorted by `computer_system_id`, `software_title_id`, and `metric_name` columns.

Table 42. Operation descriptions

Operation details	Description
Operation	GET <code>/api/sam/license_usages</code>
Purpose	Returns information about license usage
HTTP method	GET
Resource URI	<code>https://server_host_name:port_number/api/sam/license_usages</code>
URL link relation	n/a
URI query parameters	For a list of applicable query parameters, see: Query parameters .
Request headers	<p>Header Accept-Language (optional)</p> <p>Values en-US (only English is supported)</p> <p>Used to negotiate the language of the response. If this header is not specified, the content is returned in the server language.</p>
Request payload	n/a
Request Content-Type	application/json

Table 42. Operation descriptions (continued)

Operation details	Description
Response headers	Header Content-Type Values application/json Specifies the content type of the response.
	Header Content-Language Values en-US, ... Specifies the language of the response content. If this header is not specified, the content is returned in the server language.
	Header Import-Mode Values none, idle, running, pending Specifies the import status.
	Header Import-Progress Values A percentage value, for example 59. Specifies the percentage progress of an import.
	Header Import-Last-Status Values successful, failed Specifies the status of the last import.
	Header Import-Last-Success-Time Values Date, for example 2014-06-18T04:00:29Z. Specifies the time of the last successful import.
Response payload	License Usages element
Response Content-Type	application/json
Normal HTTP response codes	200 – OK
Error HTTP response codes	500 – "Bad Request" if a query parameter contains errors or is missing Message body includes an error message with details.

Query parameters

You can use query parameters to narrow down the results of your search. The following table presents query parameters that you can use for the `api/sam/license_usages` element.

Table 43. Query parameters for retrieving license usage

Parameter	Description	Required	Value
<code>columns[]</code>	Specify which columns to retrieve. If you do not specify this parameter, a set of default columns is retrieved. Example: Retrieve the name and version columns: <code>URL?columns[]=name&columns[]=version</code>	No	String

Table 43. Query parameters for retrieving license usage (continued)

Parameter	Description	Required	Value
order	Specify how to sort the returned data. The default direction for sorting columns is ascending. If you want to specify a descending sort, append desc to the column name. Example: Order by peak license usage descending: <i>URL?order[]=peak_value desc</i>	No	String
limit	Specify the number of rows to retrieve. If you omit this parameter, all rows are retrieved.	No	Numeric
offset	Specify the number of rows to skip for retrieving results. You can use it together with the limit parameter to paginate results. Example: Retrieve 50 records starting after record 150: <i>URL?limit=50&offset=150</i>	No	Numeric
token	A unique user authentication identifier. You can view your token in the Profile preferences of Software Use Analysis.	Yes	Alphanumeric

criteria

Retrieve records which match specific conditions. The parameter should have the following structure, written on one line:

```
<criteria> ::= <left-brace> <boolean-operator><colon> <left-bracket>
<criterion> [{ <comma> <criterion> }...] <right-bracket> <right-brace>
<boolean-operator> ::= "and" | "or"
<criterion> ::= <criteria> | <left-bracket> <column> <comma> <operator> <comma> <value> <right-bracket>
<column> ::= <json-string>
<operator> ::= <json-string>
<value> ::= <json-array> | <json-string> | <json-numver> | <json-null>
```

Example: Retrieve computer systems whose operating system contains "AIX" OR the last seen date within a specific date range:

```
URL?criteria={ "or": [ ["os", "contains", "aix"], { "and": [ ["last_seen", ">", "1970-01-01T00:00:00+00:00Z"], ["last_seen", "<", "1970-01-02T00:00:00+00:00Z"] ] } ] }
```

Example HTTP conversation

Request

```
GET api/sam/license_usages
?token=7adc3efb175e2bc0f4484bdd2efca54a8fa04623
Host: localhost:9081
Accept: application/json
Accept-Language: en-US
```

Response header

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Language: en-US
```

The above response header may be followed by different entries, depending on the current status of the data import which is represented by Import-Mode. To understand the returned values, see the following definitions:

- none - a data import has never been initiated
- idle - no data imports are currently running
- running - a data import is in progress

- pending - an action performed in the user interface requires a data import to be started for the change to take effect

If a data import has never been initiated:

Import-Mode: none

If a data import is in progress:

Import-Mode: running

Import-Progress: 41

If a data import is not running:

Import-Mode: idle/pending

Import-Last-Status: successful

Import-Last-Success-Time: Mon, 23 Jun 2014 12:18:29 GMT

Response body (JSON)

If a particular entry is hidden by default, it is not retrieved by using the general URL. To retrieve such data, you must use query parameters to specify the name of the hidden column. For example, you can retrieve the `software_title_dimension.name` column by using the `columns[]` parameter:

`URL?columns[]=software_title_dimension.name`

```
{
  "software_title_id": 36181,
  "metric_name": "RVU_FULL_CAP",
  "computer_system_id": 4,
  "peak_value": 1,
  "peak_date": "2014-04-14",
  "peak_time": "2014-04-14T13:05:10Z",
  "reporting_period_start_date": "2014-04-01",
  "reporting_period_end_date": "2014-04-30",
  "software_title_dimension": //hidden by default
    {
      "name": "IBM Endpoint Manager for Core Protection",
      "guid": "d78048cf-842b-44e8-8036-e7e2bf8afb31",
      "publisher_name": "IBM",
      "publisher_guid": "8a759f0c-b91a-4d7d-8c4a-a9d85e06c13d"
    }
}
```

REST API for export and import of saved report views

You can use REST API requests to export a saved report view from one instance of Software Use Analysis and import it to another instance of the application.

Exporting and importing a saved report view

To export a saved report view to another instance of Software Use Analysis, check the ID of the report view in the source instance of Software Use Analysis. Then, use the GET operation to retrieve the definition of the saved report view. Next, use the POST operation to import it to another instance of Software Use Analysis.

About this task

The following procedure uses cURL command-line tool for negotiating API requests.

Procedure

1. Check the identifier of the saved report view.
 - a. Log in to the instance of Software Use Analysis from which you want to export the saved report view.
 - b. In the top navigation bar, click **Reports > Saved Reports**. Open the saved report view and check the last number in the report URL. In the following example, the report ID is 2.

```
http://server_host_name:port_number/sam/pvuonlysubcapreports#
32fe0f54dc719893faacc1d0f38a0c9045863729/2
```

2. Obtain API tokens from both instances of Software Use Analysis.
 - a. In the top navigation bar, expand the user name menu and click **Profile**.
 - b. In the API token line, click **Show token**.
3. Open the command line interface and change to the location where cURL is installed.
4. To export the report view, use the following GET request:

```
curl -o C:\saved_reports\report_definitions\pvu_subcapacity.txt -X GET server_host_name:port_number/api/reports/report_ID?token=5edd5aey7cd91467h08450bc258c31f0ce706543
```

Where:

-o Specifies the path to the file where the definition of the saved report view is to be saved.

-X Specifies the type of HTTP request.

report_ID

Specifies the identifier of the saved report view that is to be exported.

If the request is successful, the following message is displayed:

```
HTTP/1.1 200 OK
```

5. To import the saved report view to another instance of Software Use Analysis, use the following POST request:

```
curl -H "Content-Type: application/json" -X POST -d "@C:\saved_reports\report_definitions\pvu_subcapacity.txt" server_host_name:port_number/api/reports?token=5cd3gh78499496e89a3246ab343474e85d8bc8fc
```

Where:

-H Specifies the header of the request.

-X Specifies the type of HTTP request.

-d Specifies the path to the file where the definition of the saved report view was saved.

Results

The saved report view was imported to the target instance of Software Use Analysis.

Export of saved report views

You use the GET operation on the `api/reports/report_ID` element to export a saved report view which can be then imported to another instance of Software Use Analysis.

Table 44. Operation descriptions

Operation details	Description
Operation	GET /api/reports/report_ID
Purpose	Returns the saved report view with the specified ID.
HTTP method	GET
Resource URI	https://server_host_name:port_number/api/reports/report_ID
URL link relation	n/a
URI query parameters	For a list of applicable query parameters, see: Query parameters.

Table 44. Operation descriptions (continued)

Operation details	Description
Request headers	<p>Header Accept-Language (optional)</p> <p>Values en-US (only English is supported)</p> <p>Used to negotiate the language of the response. If this header is not specified, the content is returned in the server language.</p>
Request payload	n/a
Request Content-Type	Application/json
Response headers	<p>Header Content-Type</p> <p>Values Application/json</p> <p>Specifies the content type of the response.</p> <hr/> <p>Header Content-Language</p> <p>Values en-US, ...</p> <p>Specifies the language of the response content. If this header is not specified, the content is returned in the server language.</p>
Response payload	Saved reports element
Response Content-Type	Application/json
Normal HTTP response codes	200 – OK
Error HTTP response codes	<p>401- There is no match for the provided user name and password</p> <p>401 - You are not assigned a Computer Group. You will not be able to access the system until you are assigned a valid Computer Group. Contact your administrator for assistance</p> <p>404 - Sequel::RecordNotFound</p> <p>For more details about each error code, check the team.log log file that is in the <i>install_dir/wlp/usr/servers/server1/logs/</i> directory.</p>

Query parameters

You can use query parameters to narrow down the results of your search. The following table presents query parameters that you can use for the `api/reports` element.

Table 45. Query parameters for retrieving saved report views

Parameter	Description	Required	Value
token	A unique user authentication identifier.	Yes	Alphanumeric
id	<p>An identifier of the saved report. To find the report identifier, open the saved report and check the last number in the report URL. In the following example, the report ID is 3.</p> <p><i>server_host_name:port/sam/app_usage_property_values#cafccac39cd0b242b82729377b0b2b872d3af8d8a/3</i></p>	No	Numeric

Example HTTP conversation

Request

```
GET/api/reports/1
&token=a070afeca411d2fs25f5s4c962de2d002b14352f
```

Response header

```
HTTP/1.1 200 OK
Content-Type: Application/json
Content-Language: en-US
```

Response body (JSON)

```
{
  "id":1,
  "user_id":1,
  "pagestate_id":"eb5743b7cd23316f0bc8a4dd3f63b90d73549042",
  "name":"pvu_test",
  "path":"/sam/pvuonlysubcapreports",
  "private":true,
  "state":{
    "columns":["product","quantity","hwm_history"],
    "criteria":{"and":[{"quantity",">","200"}]},
    "grid_options":["autosize_columns"],
    "order":{"asc":true,"col":null},
    "time_range":{
      "max":"2014-07-21T10:18:04Z",
      "min":"2014-04-21T22:00:00Z",
      "type":"absolute_to_now",
      "units":"days",
      "value":"90"
    },
    "column_order":{
      "hwm_history":1,
      "product":0,
      "quantity":2
    },
    "column_widths":{
      "hwm_history":180,
      "product":524,
      "quantity":719
    }
  }
}
```

Import of saved report views

You use the POST operation on the `api/reports` element to import a saved report view from another instance of Software Use Analysis.

Table 46. Operation descriptions

Operation details	Description
Operation	POST /api/reports
Purpose	Imports a saved report view from another instance of Software Use Analysis.
HTTP method	POST
Resource URI	<code>https://server_host_name:port_number/api/reports</code>
URL link relation	n/a
URI query parameters	For a list of applicable query parameters, see: Query parameters.
Request headers	Header Accept-Language (optional) Values en-US (only English is supported) Used to negotiate the language of the response. If this header is not specified, the content is returned in the server language.

Table 46. Operation descriptions (continued)

Operation details	Description
Request payload	Saved reports element
Request Content-Type	Application/json
Response headers	<p>Header Content-Type</p> <p>Values Application/json</p> <p>Specifies the content type of the response.</p>
	<p>Header Content-Language</p> <p>Values en-US, ...</p> <p>Specifies the language of the response content. If this header is not specified, the content is returned in the server language.</p>
Response payload	n/a
Response Content-Type	Application/json
Normal HTTP response codes	200 – OK
Error HTTP response codes	<p>401- There is no match for the provided user name and password</p> <p>401 - You are not assigned a Computer Group. You will not be able to access the system until you are assigned a valid Computer Group. Contact your administrator for assistance.</p> <p>404 - Not Found</p> <p>404 - Sequel::RecordNotFound</p> <p>500 - Name is already taken</p> <p>500 - There was a problem with your request</p> <p>500 - We're sorry, but something went wrong. Please contact your Tivoli Endpoint Manager Analytics administrator if the problem persists</p> <p>500 if the JSON format is invalid, a detailed message with the problem explanation is also returned. For example, if a name field is missing, the following message is displayed: The property '#/' did not contain a required property of 'name' in schema 69e40f9b-9a3e-53d1-a7d8-61d63eb191e8#</p> <p>For more details about each error code, check the team.log log file that is in the <i>install_dir</i>/wlp/usr/servers/server1/logs/ directory.</p>

Query parameters

You can use query parameters to narrow down the results of your search. The following table presents query parameters that you can use for the `api/reports` element.

Table 47. Query parameters for retrieving saved report views

Parameter	Description	Required	Value
token	A unique user authentication identifier.	Yes	Alphanumeric

Example HTTP conversation

Request header

```
Content-Type: application/json
Content-Language: en-US
```

Request

```
POST /api/reports?token=465c33848de3db7ch5699023ea22deb5b1a476d1
{
  "id":4,
  "user_id":2,
  "pagestate_id":"7ebb0b0a018ab55fab8e6e40d5eb62529ea38fad",
  "name":"pvu_report",
  "path":"/sam/pvuonlysubcapreports",
  "private":true,
  "state":{
    "columns":["product","quantity","hwm_history"],
    "criteria":{"and":[["quantity",>,"200"]]},
    "grid_options":["autosize_columns"],
    "order":{
      "asc":true,
      "col":"quantity"
    },
    "time_range":{
      "max":"2014-07-21T10:18:04Z",
      "min":"2014-04-21T22:00:00Z",
      "type":"absolute_to_now",
      "units":"days",
      "value":"90"
    },
    "column_order":{
      "hwm_history":1,
      "product":0,
      "quantity":2
    },
    "column_widths":{
      "hwm_history":180,
      "product":524,
      "quantity":719
    }
  }
}
```

Response

```
HTTP/1.1 200 OK
```

Integrating with SmartCloud Control Desk

SmartCloud Control Desk is an integrated service management solution that helps you manage a comprehensive range of IT processes, services, and assets. You can use one of its components, Integration Composer, to import and then process data from external applications, like Software Use Analysis.

Integration Composer

Integration Composer is an integration tool that imports hardware and software inventory data from external databases into the Maximo database that is used by SmartCloud Control Desk. The tool can be used to retrieve your hardware inventory from IBM Endpoint Manager and software inventory from Software Use Analysis. The retrieved data can be then passed to SmartCloud Control Desk to create reports and license calculations.

Integration Composer uses integration adapters to facilitate data imports. Those adapters specify how to transform and import data for a specific discovery tool. Such integration adapters are therefore required to describe the data that is being imported and to provide instructions on how to transform it.

Integration adapters

Integration adapters consist of a data schema and a mapping file. They provide instructions to Integration Composer on how to transform and import your data. Your complete inventory, consisting of information about your hardware and software, is imported in two batches which requires two adapters to be used. The adapter for IBM Endpoint Manager must be used first and is responsible for retrieving your hardware inventory directly from the IBM Endpoint Manager platform. After that data is imported, you use the dedicated Software Use Analysis adapter to retrieve your software inventory from Software Use Analysis. The names of the data schemas as well as the mapping files listed in the following table are needed to define the data source connections and to create proper mappings that are prerequisites for starting the import.

Table 48. Integration adapters for Software Use Analysis

Software Use Analysis version	Supported SmartCloud Control Desk version	Required adapters		Retrieved data
		Data schema	Mapping file	
Software Use Analysis 9.0.1 or higher.	SmartCloud Control Desk 7.5.1.2, including Integration Composer 7.5.1.2	IBM Endpoint Manager 9.0	IEM90ToDPA75.fsn	Hardware inventory
		IBM Endpoint Manager SUA 9.1	IEMSUA91ToDPA75.fsn	Software inventory, PVU and RVU data

Limitations

Importing your data to SmartCloud Control Desk might result in some discrepancies between what you are importing and what is displayed in the application, mostly caused by different approaches to classifying software products between Software Use Analysis and SmartCloud Control Desk. Also, because of the fact that your hardware and software inventory are imported separately, the right order of running the adapters is significant, not to mention cases in which you might want to import the data from both Software Use Analysis and other discovery tools, like Tivoli Asset Discovery for Distributed. For a complete list of limitations and best practices related to using Integration Composer with Software Use Analysis, see Best practices for integrating with Software Use Analysis in the SmartCloud Control Desk wiki.

Importing your data

Data related to your hardware and software inventory must be imported separately. It means that first you must use the adapter for IBM Endpoint Manager to import your hardware inventory directly from the platform, and then the adapter for Software Use Analysis to import your software inventory.

Hardware inventory

To import complete hardware inventory from IBM Endpoint Manager, Integration Composer retrieves a set of computer properties that describe details of assets that are deployed in your environment, such as the number of processor cores, memory, host names, and so on. These properties are included in a number of analyses that collect this data from your endpoints and upload it to IBM Endpoint Manager. All of these properties along with analyses and action sites in which they are contained are described in the mapping table for IBM Endpoint Manager. Before you use the IBM Endpoint Manager adapter to import you hardware inventory to SmartCloud Control Desk, ensure that all of the action sites listed in the mapping table are enabled and that the corresponding analyses are activated. For more information, see IBM Endpoint Manager mapping table.

When all of the analyses are activated, you can start importing your hardware inventory to SmartCloud Control Desk by using Integration Composer. To complete this task, you must define the data source

connections so that both the source and the target database is recognized by Integration Composer, create a mapping that describes the way in which your data should be transformed and imported, and then run this mapping to start the import:

1. Define your data source connections.

This procedure must be completed twice to define the connection for a source and for a target. To define the source, choose the IBM Endpoint Manager data schema that is called **IBM Endpoint Manager 9.0**. The target is the Maximo database that is used by SmartCloud Control Desk. This data schema is called **Deployed Assets 7.5**.

2. Create a mapping.

While creating a mapping, you import the mapping file that provides instructions to Integration Composer on how to transform and import your data. The mapping file for IBM Endpoint Manager is IEM90ToDPA75.fsn.

3. Run a mapping.

Run the mapping to start importing your data. You can do it from a command line which is the quickest option, or by using a properties file or a prefilled script. In case of frequent imports, you might want to choose the prefilled script because you can save the required parameters and then reuse them with each import.

Software inventory

Your software inventory, together with PVU and RVU data, is imported directly from Software Use Analysis. No additional configuration is required because all the necessary computer properties are already available in Software Use Analysis. The procedure for importing your data is similar to the one for IBM Endpoint Manager. In the same way, you define the data source connections and create a mapping, however you must use the dedicated data schema and mapping file:

1. Define your data source connections.

This procedure must be completed twice to define the connection for a source and for a target. To define the source, choose the Software Use Analysis data schema that is called **IBM Endpoint Manager SUA 9.1**. The target is the Maximo database that is used by SmartCloud Control Desk. This data schema is called **Deployed Assets 7.5**.

2. Create a mapping.

The mapping file for Software Use Analysis is IEMSUA91ToDPA75.fsn.

3. Run a mapping.

Run the mapping to start importing your data.

Results

After you run the mapping, your data is imported from Software Use Analysis. You can now log in to SmartCloud Control Desk to view the imported data.

Viewing your data

You can view the imported data in the SmartCloud Control Desk interface. Check the data about computers in your environment and software applications that are installed on them. You can also view the imported PVU and RVU consumption.

Viewing computers and installed software

View the imported data about computers and software applications that are installed on them.

Procedure

1. Log in to SmartCloud Control Desk.
2. In the navigation bar, click **Assets > Deployed Assets > Computers**.
3. Click the **Refresh** icon to update the list from the database.

The list contains data for your computers that was imported from Software Use Analysis.

4. To view software installed on your computers, click on one of them.
5. Click the **Software** tab and then click **Applications**.

The list contains software applications that are installed on a particular computer.

Viewing PVU and RVU consumption

View the consumed PVU and RVU data for your software applications.

Procedure

1. Log in to SmartCloud Control Desk.
2. In the navigation bar, click **Assets > Licenses**.
3. In the **More Actions** section, click **Add/View Software Consumption Data**.

The list contains your software applications and the related PVU and RVU consumption.

Note: The VALUNIT capacity unit represents the PVU consumption.

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