API Documentation for Omnissa Intelligence - V2

1. Introduction

The Omnissa Intelligence (**formerly Workspace ONE Intelligence**) V2 API documentation describes how to query and extract data for use in other business intelligence tools. It also helps with building General Data Protection Regulation (GDPR) compliant tools and applications with REST APIs.

A limitation of V1 APIs was they didn't supporting joining multiple entities. V2 APIs for reports now support JOINS. Attribute names in V2 end-point requests and responses are fully qualified and are in the **format <integration>.<entity>.<attribute_name>.**

Example:

```
carbonblack.threat._threat_family
```

2. Intended Audience

This content is intended for experienced developers who are familiar with Omnissa Intelligence data and controls.

3. Terms

Omnissa Workspace ONE UEM: The name of the product formerly known as AirWatch.

Omnissa Intelligence for Consumer Apps (Omnissa Intelligence SDK): The name of the product formerly known as Apteligent or Workspace ONE Intelligence for Consumer Apps

4. API Concepts

4.1. Host Names

Examples in this document refer to the host ***https://api.sandbox.data.vmwservices.com***. As a customer you will need to substitute the host name specific to the region in which your data resides. For a list of the regions and endpoints, access URLs to Whitelist for On-Premises by Region.

4.2. HTTP Methods

GET: Used to request a single, specific entity/object.

POST: Used to submit a request that requires a JSON body. The JSON body can provide information used to create a new object (for example, Create Report API) or it can provide information used to control the result set of a query (for example, pagination, search).

4.3. Path Parameters

When a URL requires path parameters, those parameters are denoted with curly braces. For example:

URL	Path Parameter	
https://api.sandbox.data.vmwservices.com/v2/reports/{a}	{a}	When making this API call, the value "{a}" must be substituted with an appropriate value.

4.4. Data Formats

Any HTTP Request Body must be submitted as JSON. The following HTTP header must be included with such requests:

Header Name	Header Value
Content-Type	application/json

Data returned from the Omnissa Intelligence APIs is likewise returned as JSON. A client should always indicate its ability to process JSON in any request:

Header Name	Header Value
Accept	application/json OR */*

4.5. Paging

API requests that return more than a single object are always paged. Paging is controlled with 2 parameters:

Parameter Name	Parameter Description	Min	Max	Default
page_size	The number of records to return.	1	1000	100
offset	Offset across the entire data set at which the current page starts.	0	<any>	0

4.5.1. Example Request Body (default sort)

```
{
    "offset": 2000,
    "page_size": 100
}
```

Paging requires the data set to be sorted. Each dataset has a default sort order, but that can be controlled by specifying “sort_ons”, which consist of 2 parameters:

Parameter Name	Parameter Description	Default Value (for reports)
field	The field to sort on.	name
order	The sort order (ASC or DESC)	ASC

4.5.2. Example Request Body (custom sort)

```
{
    "offset": 200,
    "page_size": 1000,
    "sort_ons": [
        {
            "field": "modified_at",
            "order": "DESC"
        }
    ]
}
```

4.6. Search Terms

Search terms is are provided in request as an array. This takes three parameters :

⚠ These search terms only apply to Omnissa SDK Apps APIs

Parameter Name	Parameter Description	Default Value
value	String value used for searching	
fields	**Optiona**l Array of fields to search the value.	
operator	**Optional** Search operator specified as a String. This can accept one of the three values : "START_WITH", "CONTAINS", "ENDS_WITH"	"CONTAINS"

Example Request Body :

```
{
    "search_terms": [{
        "value": "crash",
        "fields": ["name"],
        "operator": "CONTAINS"
    }],
}
```

4.7. Authentication

API calls to Omnissa Intelligence are always authenticated using a JSON Web Token (JWT). JWT tokens are submitted as Bearer tokens in an HTTP Authorization header.

Header Name	Header Value
Authorization	Bearer <jwt-token>

⚠ More information about JSON Web Tokens can be found in the RFC: https://tools.ietf.org/html/rfc7519

The site https://jwt.io/ is a helpful tool for parsing JSON Web Tokens.

If access tokens are expired or invalid, the API invoked returns an HTTP status 401 (Unauthorized).

4.8. API Error Handling

Input errors always generate an HTTP BAD Request (status 400) along with a JSON body that provides further details about the error. For example:

```
{
  "errors" : [ {
    "code" : "FIELD-VALIDATION",
```

```
    "message" : "Invalid value [DES]. Must be one of [asc, desc].",
    "violated_property" : "sort_ons[0].order"
  } ]
}
```

Errors is an array with the following fields:

code	The error code indicating the type of error.
message	More information about the specific error
violated_property	A specific property name (if applicable)

Messages that cannot be parsed, often because they have invalid (unsupported) fields, return an error as follows:

```
{
  "errors" : [ {
    "code" : "UNPARSEABLE-MESSAGE",
    "message" : ""
  } ]
}
```

Requests that result in constraint violations (for example, 2 reports with the same name) return errors as follows:

```
{
  "errors" : [ {
    "code" : "DUPLICATE-KEY",
    "message" : ""
  } ]
}
```

Other standard errors include:

HTTP Status Code	Description
401	Authentication failed. Likely your access-token needs to be renewed.
403	Authorization failed. You attempted to access a resource or perform an operation that you are not permitted to do.
404	The resource you attempted to access does not exist.
429	Rate limit exceeded.

5. Credentials for API Access

5.1. Configure a Service Account

A service account provides you with a clientId and clientSecret that can be used to obtain a JSON Web Token for calling Intelligence APIs.

1. In the Omnissa Intelligence UI, go to Settings → Service Accounts.
2. Create a service account.

3. The browser downloads a JSON credentials file with the credential.

Example Credentials File

```
{
    "name": "reportscript",
    "tokenEndpoint": "https://api.staging.dpa0.org/auth/console/token",
    "clientId": "reportscript@538f619e-2db4-4f07-974b-efb3e5326116.data.vmwservices.com",
    "clientSecret": "5b3b835b2adedd28b1862b3bb714e48f03423010903f2ec7159031ba1995ad0e",
    "authorizedGrantType": [
        "CLIENT_CREDENTIALS"
    ],
    "resourceIds": [
        "api.data.vmwservices.com"
    ]
}
```

- The ***clientSecret*** is a password and must be protected.
- After creating the service account, you cannot retrieve the clientSecret again. You may generate a new ***clientSecret***, but this replaces (invalidates) the original **clientSecret**.

5.2. Obtain an Access Token

5.2.1. Example Request

POST https://auth.sandbox.data.vmwservices.com/oauth/token?grant_type=client_credentials

Header Name	Header Value	Notes	Example Value
Authorization	Basic <Base64 encoded username:password>	The username is the ***clientId***. The password is the ***clientSecret***.	Basic cmVwb3J0c2NyaXB0QDUzOGY2MTllLTJkYjQtNGYwNy05NzRiLWVmYjNlNTMyNjExNi5kYXRhLnZtd3NlcnZpY2VzLmNvbTo1YjNiODM1YjJhZGVkZDI4YjE4NjJiM2JiNzE0ZTQ4ZjAzNDIzMDEwOTAzZjJlYzcxNTkwMzFiYTE5OTVhZDBl

⚠ Notice the "auth" prefix on the URI. All other APIs are accessed with an "api" prefix. Only the token endpoint uses the "auth" prefix.

5.2.2. Example Response


```
{
    "access_token":
"eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9.eyJzdWIiOiJyZXBvcnRzY3JpcHRANTM4ZjYxOWUtMmRiNC00ZjA3LTk3NGItZWZiM2U1MzI2MTE2LmRhdGEudm13c2VydmljZXMuY29tIiwiYXVkIjpbImFwaS5kYXRhLnZtd3NlcnZpY2VzLmNvbSJdLCJuYmYiOjE1NTk2MTMzMDYsInNjb3BlIjpbImRwYS5zd2VldHdhdGVyLnNlcnZpY2UuYWN0aW9udGVtcGxhdGUiLCJkcGEuc3dlZXR3YXRlci5zZXJ2aWNlbWV0YSIsImRwYS5zd2VldHdhdGVyLmF1dG9tYXRpb24tZW1wbGF0ZSIsImRwYS5zd2VldHdhdGVyLndvcmtmbG93IiwiZHBhLm1lcmxvdC5yZXBvcnR0ZW1wbGF0ZSIsImRwYS5tZXJsb3QudXNlcnMiLCJkcGEubWVybG90LnJlcG9ydHRyYWNraW5nIiwiZHBhLm1lcmxvdC5yZXBvcnRzY2hlZHVsZSIsImRwYS5tZXJsb3QucmVnaXN0cmF0aW9uIiwiZHBhLm1lcmxvdC5kYXNoYm9hcmQiLCJkcGEucHJhbnFzdGVyLmlhbSIsImRwYS5tZXJsb3QucmVwb3J0IiwiZHBhLnN3ZWV0d2F0ZXIuYXV0b21hdGlvbnRlbXBsYXRlIiwiZHBhLmJhbHZlbmllLnF1ZXJ5IiwiZHBhLnN3ZWV0d2F0ZXIuY29udGVudCIsImRwYS5zd2VldHdhdGVyLnNlcnZpY2VtZXRhIiwiZHBhLmF1dG9tYXRpb24iLCJkcGEua25vY2tvdXQucXVlcnkiLCJkcGEubWVybG90LmF1ZGl0bG9ncyIsImRwYS5tZXJsb3QudHJpYWwud3JpdGUiLCJkcGEubWVybG90LmFwcHJlZ2lzdHJhdGlvbiIsImRwYS5tZXJsb3QucmVwb3J0c2NoZWR1bGUiLCJkcGEubWVybG90LnNlcnZpY2Vjb25maWciLCJkcGEuc3dlZXR3YXRlci5ydWxlIiwiZHBhLm1lcmxvdC5ub3RpZmljYXRpb24iLCJkcGEuc3dlZXR3YXRlci5hdXRvbWF0aW9udGVtcGxhdGUiLCJkcGEubWVybG90LmludGVncmF0aW9uIiwiZHBhLm1lcmxvdC5vcmcucmVnaXN0cmF0aW9uLnVwZGF0ZSIsImRwYS5tZXJsb3QuZGFzaGJvYXJkIiwiZHBhLm1lcmxvdC5ldWxhIiwiZHBhLnByYW5xc3Rlci5vYXV0aGNsaWVudCJdLCJjbGllbnRfaWQiOiJhM2E5OTBmYi1iNWY4LTRlZDktYWZjMC00YTY3MWRkNTc1OGIifQ.1qYGkOuZ6udZZyrHetqCIFJZ2ycwm1tKpXRyd4TMeJdipkd93MNdqUWMufmklAAAMbA0De-
12i9eipuLEU8QWslJ0ufhW6Dlj5St0p9NfB4G63ppOg6o_SUiZFrZZR5WTLSbdo7CNz9Pm-jkYSwGbE-
YUzHHP1JWOkwuxoZU3s5eqI4LLn3hjyBaEuaUb0ohn_JnLSj_sjr09af0blNay1mJ62os9yhJy6hquyrS9mK1Yuyb6EC7cb-
zPAkGSokPRPORIKalz2o10VVC_NazOybZo901Li2J9T03qM06Fa5k6Z6pMTyr98bM8hFJhOWkgKDE29xbgx3RRtS3R286QA",
    "expires_in": 3599,
    "iss": "https://auth.staging.dpa0.org",
    "jti": "a3a990fb-b5f8-4ed9-afc0-4a671dd5758b",
    "nbf": 1559613306,
    "scope": "dpa.sweetwater.service.actiontemplate dpa.balvenie.query dpa.sweetwater.servicemeta
dpa.sweetwater.automation dpa.knockout.query dpa.merlot.reportmetadata dpa.pranqster.iam dpa.merlot.report
dpa.merlot.reporttracking dpa.merlot.users dpa.merlot.reporttemplate dpa.sweetwater.workflow
dpa.sweetwater.auditlogs dpa.merlot.org.trial.write dpa.merlot.appregistration dpa.merlot.reportschedule
dpa.sweetwater.serviceconfig dpa.sweetwater.rule dpa.merlot.notification dpa.sweetwater.automationtemplate
dpa.merlot.integration dpa.merlot.org.registration.update dpa.merlot.dashboard dpa.merlot.eula
dpa.pranqster.oauthclient",
    "token_type": "bearer",
    "dpa.org_id": "538f619e-2db4-4f07-974b-efb3e5326116"
}
```


The access_token in the response can be used to call Omnissa Intelligence APIs.

6. Structure of Data

Data is organized in a 3-level hierarchy: / Integration / Entity of Event Type / Attribute.

		Example (1)	Example (2)	Example (3)
Integration Note: This field is not applicable for Omnissa Intelligence for Consumer Apps APIs)	Usually the name of the vendor or product that is sourcing the data.	airwatch	airwatch	Not Applicable
Entity or Event Type	An ***Entity*** would be an object for which the system tracks attributes over time. For example, device and users would be	device	application	Intelige

	entities. An ***Event Type*** is an event that occurs at a point in time. For example, an app launch or a notification from a security vendor would both be events.			nce SD K / An droi d Cra she s
Attribute	An ***Attribute*** is a key-value pair associated with an entity or an event type. For example, a "Device Friendly Name" could be an attribute of a device.	device_fri endly_na me	app_p ackag e_id	And roid App Vers ion

For API responses, the following integration/entity combinations are available:

Category	Integration	Entity	Category (as seen in the Omnissa Intelligence UI)
Apps	airwatch	application	Apps
Devices	airwatch	device	Devices
OS Updates	airwatch	windowspatch	OS Updates
Device Sensors	airwatch	devicesensors	Device Sensors
Intelligence SDK	*Not Applicable*	e.g. Android Crashes	Intelligence SDK

7. Omnissa Intelligence SDK Apps Metrics Metadata APIs

7.1. Entities API

Entities API returns list of all entities . A search-term can be used to filter the entities.

POST /v2/metadata/entities

7.1.1. Request

Request information requires following fields in a JSON body :

Field	Data Type	Default Value	Description	Validation
offset	integer	0	Offset across the entire data set at	Greater than or equal to 0. Must be

			which the current page starts.	less than the total result size
page_size	integer	100	Min and max values are listed in the Paging section.	Greater than 0 and less than MAX PAGE SIZE
sort_ons	Array	"entity" in ascending order	Optional: An ordered array of fields to sort on.	Valid sort field. entity is the only sortable field.
search_terms	Array	n/a	Optional: An array of search terms and the corresponding fields which should be inspected	Must be a searchable field; "name" is the only searchable field so only one search term is expected in the request.

7.1.1.1.1. Sample Request

```
{
    "offset": 0,
    "page_size": 5,
    "search_terms": [{
        "value": "air",
        "fields": ["name"],
        "operator": "CONTAINS"
    }],
    "sort_ons": [{
        "field": "name",
        "order": "ASC"
    }]
}
```

7.1.2. Response

Response includes pagination details and list of entities. Pagination details in response can be referred in Paging section.

Field	Data Type	Description
offset	integer	Offset across the entire data set at which the current page starts.
page_size	integer	Min and max values are listed in the Paging section.
total_count	integer	Total count of result set.
results	Array	An array of entities. Details are provided in the following table.

Entities have the following parameters :

Field	Data Type	Description
name	String	Name of entity.
label	String	User friendly/well known name of entity.
description	String	Description of that entity.

7.1.2.1.1. Sample Response

```
{
    "data": {
        "page_size": 5,
        "offset": 0,
        "total_count": 25,
        "results": [{
                "name": "airwatch.userriskscore",
                "label": "User Risk Score",
                "description": ""
            },
            {
                "name": "airwatch.userriskscore_timeseries",
                "label": "User Risk Score For Timeseries data",
                "description": ""
            }
        ]
    }
```

7.2. Attributes API

POST /v2/metadata/entity/{name}/attributes

7.2.1. Request

"name" is "entity_name" that can be learned from Entities API which is a required field and if not provided will result in validation error response.
Request requires following information in a JSON request body :

Field	Data Type	Default Value	Description	Validation
offset	integer	0	Offset across the entire data set at which the current page starts.	Greater than or equal to 0. Must be less than the total result size

page_size	integer	100	Min and max values are listed in the Paging section.	Greater than 0 and less than MAX PAGE SIZE
sort_ons	Array	"name" in ascending order	Optional: An ordered array of fields to sort on.	Valid sort field. "name" is the only allowed sort fields.
search_terms	Array	n/a	Optional: An array of search terms and the corresponding fields which should be inspected	"name" is the only searchable field, so only one search term is expected in the request.

Sample Parameter:

```
airwatch.device
```

Sample Request:

```
{
  "page_size": 5,
  "offset": 0,
  "sort_ons": [
    {
      "field": "name",
      "order": "ASC"
    }
  ],
  "ignore_case": true,
  "entities_by_integration": {},
  "join_entities_by_integration": {}
}
```

7.2.2. Response

The response has the list of attributes along with entity name and pagination values as follows:

Field	Data Type	Description
offset	integer	Offset across the entire data set at which the current page starts.
page_size	integer	Min and max values are listed in the Paging section.
total_count	integer	Total count of result set.
entity	String	Entity from request.
results	Array	Array of attributes for the requested entity. The description and fields for each attribute in the

		list is mentioned in the following table.

The following is the data sent for each attribute :

Field	Data Type	Description
name	String	Name of the attribute
label	String	Label gives better understanding of attribute name.
description	String	Description of the attribute.
data_type	String	Attribute data type.
bucketing_allowed	Boolean	Bucketing / Filtering for Metrics API will be allowed only when the value is true for the attribute.

Sample Response:

7.2.2.1.1. Sample Response


```
{
    "data": {
        "page_size": 2,
        "offset": 0,
        "total_count": 189,
        "results": [
            {
                "name": "airwatch.device._airwatch_device_guid",
                "label": "Workspace ONE UEM Device GUID",
                "description": "Workspace ONE UEM Device GUID",
                "data_type": "STRING",
                "bucketing_allowed": true
            },
            {
                "name": "airwatch.device._city",
                "label": "City",
                "description": "City",
                "data_type": "STRING",
                "bucketing_allowed": false
            }
        ]
    }
}
```

8. Omnissa Intelligence SDK Apps Metrics APIs

8.1. Entity Metrics API

POST v2/metrics/entity/*

Metrics API returns a metric values for each of the metric names provided in the request body. Currently we only support a single metric name in the request body.

Metrics API does not support pagination and a maximum of 1k metrics will be returned per request. Request will timeout after 20 seconds.

8.1.1. Supported Metrics

The following metrics are supported with this API:

METRIC TYPE	ATTRIBUTE DATA TYPES SUPPORTED	RESULT DATA TYPE
AVG	DOUBLE, FLOAT, INTEGER, LONG	DOUBLE
SUM	DOUBLE, FLOAT, INTEGER, LONG	LONG
MIN	DOUBLE, FLOAT, INTEGER, LONG	LONG
MAX	DOUBLE, FLOAT, INTEGER, LONG	LONG
COUNT	All	LONG
COUNT_DISTINCT	All	LONG

If metrics are requested with unsupported metric type or on attributes with datatypes that are not supported, HTTP 400 error response will be returned with appropriate error message.

8.1.2. Request

POST v2/metrics/entity/*

Payload for any entity metrics end point have the following common parameters :

Field	Data Type	Description	Validation
entity	String	Entity name and this is a **required** field. This can be known from Entities API.	Non empty String and a valid entity name.

time_window	Json Object	This object takes **time range** in one of the time span or date range with start and end time or just start time. This is **required** and if none are provided in the request it results in **validation error** .	Validation of date values or time span. 1)The timewindow cannot exceed 90 days. 2) Either of start_time or Timespan should be present in the request but not both. 3) Only end_time is not valid.
metrics	Json Object	Specifies an array of the metric function to be applied on the attribute. The attributes can be known from the Attributes Metadata API. This is a **required** object and takes "name" and "function" required fields.	Should be one of the listed aggregation functions. Upto 5 metrics are allowed in each request. At this point only one Metric is supported.
filter	String	String of filter attributes that follows ANTLR grammar. **Optional.**	Only attributes that have bucketing/filtering set to true from Attributes API are allowed.
bucketing_attributes	Array	Array of grouping attributes known from Attributes Metadata API. Metrics will be returned within the time range for each bucket. **Optional**. Currently this field is not supported for Rolling window type requests. If provided in the request, it will be ignored.	Only attributes that have bucketing/filtering set to true from Attributes API are allowed. Maximum of 10 bucketing attributes per request are allowed but the more the number of bucketing attributes, number of buckets per data point will be less.
num_results_per_bucketing_attribute	Integer	An **optional** field that defines number of buckets per data point. A data point corresponds to sampling interval size. "simple_timerange" will have one data point and "histogram" or "rolling window" number of data points is based on number of sampling intervals.	Default value is set to 20 and maximum value is set 500.
date_attribute_name	String	**Optional** date field to be used for computing metrics and the data type of the attribute should be date.	

time_window has the following fields :

Field	Data Type	Description	Validation
start_time	String	Date in the format "yyyy-mm-ddTHH:MM:SSz". **Optional. Either this or timespan should be present. Otherwise results in validation error.**	Date format validation.

end_time	String	Date in the format "yyyy-mm-ddTHH:MM:SSz" . **Optional**, if not provided considered as current time.	Date format validation.

timespan	String	Mentions the span of time to calculate metrics. Accepted time units and sample are provided in the following table.**Optional**, either **this or start_time** are mandatory in the request.
		timespan {
		"duration" : duration of the request,
		"unit" : time unit
		}
			Valid Time Units :
			Seconds, Minutes, Hours, Days, Weeks, Months, Years.

Sample Request:

8.1.2.1.1. Sample Request

```
{
    "entity": "apteligent.net_event",

    "time_window" : {
      "timespan" : {
        "duration" : 10,
        "unit" : "DAYS"
      }
    },

    "date_attribute_name": "apteligent.net_event.adp_modified_at",

    "metrics": [{
        "name": "apteligent.net_event.bytes_sent",
        "function": "AVG"
    }],

    "filter": "app_id = 'e7f33c1d0df740a1a436f64ed5d43f7600555305'",

    "bucketing_attributes" : [ "apteligent.net_event._url_host","apteligent.net_event.http_status_code" ],

    "num_results_per_bucketing_attribute": 40
}
```

8.1.3. Response

Response has the following fields :

Field	Data Type	Description
entity	String	entity received in request.

result_type	String	Result type is the request end point type sent back in response.
is_complete_dataset	Boolean	If this field is present it indicates that entire dataset is not returned in response and to retrieve additional data, request should be adjusted (time window or sampling interval size or cardinality) and re tried.
metadata	Object	This contains metadata for all the aggregation and bucketing attributes and date_attribute_name `"metadata": { "date_attribute_name": date attribute used for aggregations, "attributes": { "attribute_name": { "label": <attribute_label>, "data_type": <attribute_datatype> } } }`
result	Array	Array of response objects as shown in the next table.

Each object in result array has the following fields :

Field	Data Type	Description
metric_value	Array of objects that contain metric details from request and value whose Result data type varies based on the aggregate function, aggregation attribute and aggregation function.	The result data type differs by aggregation functions and is listed in Supported Metrics section above.
start_time	String	Start time for the metric will be returned in the format "yyyy-mm-ddTHH:MM:ssZ" if milliseconds equals 0. If milliseconds has value then format will be "yyyy-mm-ddTHH:MM:ss.SSSZ". Start time and end

		time will be set to current time for non- time series/snapshot requests.
end_time	String	End time for that metric will be returned in the format "yyyy-mm-ddTHH:MM:ssZ" or if milliseconds has value then "yyyy-mm-ddTHH:MM:ss.SSSZ"
bucketing_attributes	Object	This is returned only if request has bucketing attributes. This has key, value pairs for each bucketing attribute in the request.

Sample Response:

8.1.3.1.1. Sample Response


```
{
    "data": {
        "entity": "apteligent.net_event",
        "result_type": "SIMPLE_TIMERANGE",
        "metadata": {
            "date_attribute_name": "apteligent.net_event.adp_modified_at",
            "attributes": {
                "apteligent.net_event.http_status_code": {
                    "label": "HTTP Status Code",
                    "data_type": "INTEGER"
                },
                "apteligent.net_event._url_host": {
                    "label": "URL",
                    "data_type": "STRING"
                },
                "apteligent.net_event.bytes_sent": {
                    "label": "Data Out",
                    "data_type": "LONG"
                }
            }
        },
        "is_complete_dataset": false,
        "result": [{
                "start_time": "2020-08-23T00:00:00Z",
                "end_time": "2020-09-02T18:43:02.25Z",
                "bucketing_attributes": {
                    "apteligent.net_event.http_status_code": 505,
                    "apteligent.net_event._url_host": "api.event.gov"
                },
                "metrics_values": [{
                    "name": "apteligent.net_event.bytes_sent",
                    "function": "AVG",
                    "value": 498.22222222222223
                }]
            },
            {
                "start_time": "2020-08-23T00:00:00Z",
                "end_time": "2020-09-02T18:43:02.25Z",
                "bucketing_attributes": {
```

```
                    "apteligent.net_event.http_status_code": 413,
                    "apteligent.net_event._url_host": "api.event.gov"
                },
                "metrics_values": [{
                    "name": "apteligent.net_event.bytes_sent",
                    "function": "AVG",
                    "value": 506.64814814814815
                }]
            }
        ]
    }
}


... <RESPONSE TRUNCATED FOR READABILITY>

```

8.2. Requests With Simple Time Window

8.2.1. Request

POST /v2/metrics/entity/simple_timerange

This end point does not have any additional request fields and uses the fields defined here.
simple_timerange end point takes the time window and returns result over the time range. If the entity has non time-series data the metrics will be calculated over the entire data and not for the time window. "start_time" and "end_time" will be set to current time in results for non timeseries/snapshot requests.

Sample Request:

8.2.1.1.1. Sample Request

```
{
    "data": {
        "entity": "apteligent.net_event",
        "time_window": {
            "timespan": {
                "duration": 59,
                 "unit": "DAYS"
             }
        },
        "metrics": [{
            "name": "apteligent.net_event.bytes_sent",
            "function": "AVG"
         }]
    }
}
```

8.2.2. Response

Sample Response:

8.2.2.1.1. Sample Response


```
{
    "data": {
        "entity": "apteligent.net_event",
        "result_type": "SIMPLE_TIMERANGE",
        "metadata": {
            "date_attribute_name": "apteligent.net_event.event_timestamp",
            "attributes": {
                "apteligent.net_event.bytes_sent": {
                    "label": "Data Out",
                    "data_type": "LONG"
                }
            }
        },
        "result": [
            {
                "start_time": "2022-12-24T00:00:00Z",
                "end_time": "2023-02-21T23:57:29.568Z",
                "metrics_values": [
                    {
                        "name": "apteligent.net_event.bytes_sent",
                        "function": "AVG",
                        "value": 567.833333333334
                    }
                ]
            }
        ]
    }
}
```


8.3. Histogram Requests

POST /v2/metrics/entity/histogram

The histogram option return metrics for each sampling interval size within the specified time window.

8.3.1. Request

The other time_window fields common for all requests can be found here. In addition to them the following is needed for histogram requests.

Field	Data Type	Description	Validation
sampling_inteval	Object	interval for which metrics have to be calculated. This is **required** attribute. This takes two fields unit to specify the time unit and duration for the interval size.	Interval should be less than the time range specified. If request start and end date range is for 1 days and interval size is 2 days, error response will be returned with invalid interval size.

8.3.1.1.
Sample Request:

8.3.1.1.1. Sample Request

```
{
    "data": {
        "entity": "apteligent.crash_ios",

        "time_window": {
            "timespan": {
                "duration": 2,
                 "unit": "DAYS"
             }
        },
        "sampling_interval": {
            "duration": 1,
            "unit": "DAYS"
        },

        "date_attribute_name": "apteligent.crash_ios.adp_modified_at",

        "metrics": [{
            "name": "apteligent.crash_ios.device_model",
            "function": "COUNT"
        }],

        "num_results_per_bucketing_attribute": 10
} }


```

8.3.2. Response

Sample Response:

8.3.2.1.1. Sample Response

```
{
    "data": {
        "entity": "apteligent.crash_ios",
        "result_type": "HISTOGRAM",
        "metadata": {
            "date_attribute_name": "apteligent.crash_ios.adp_modified_at",
            "attributes": {
                "apteligent.crash_ios.device_model": {
                    "label": "Device Model",
                    "data_type": "STRING"
                }
            }
        },
        "result": [
            {
                "start_time": "2023-02-20T00:00:00Z",
                "end_time": "2023-02-21T00:00:00Z",
                "metrics_values": [
                    {
                        "name": "apteligent.crash_ios.device_model",
                        "function": "COUNT",
```

```
                        "value": 0
                    }
                ]
            },
            {
                "start_time": "2023-02-21T00:00:00Z",
                "end_time": "2023-02-22T00:00:00Z",
                "metrics_values": [
                    {
                        "name": "apteligent.crash_ios.device_model",
                        "function": "COUNT",
                        "value": 256
                    }
                ]
            }
        ]
    }
}
```

8.4. Rolling Window Requests

POST /v2/metrics/entity/rolling_window

Rolling window is a specialized variation of histogram requests. Rolling window will calculate metrics using the interval and the rolling window size. For each interval within the requested time range, metrics will be calculated for rolling window size.

Note : Rolling window supports only "COUNT_DISTICT" aggregation function.

For example if rolling window request is as follows :

```
"time_window" : {
    "type" : "rolling_window",
    "start_time": "2020-04-27",
    "end_time": "2020-04-30",
    "sampling_interval" : "1 DAYS",
    "window_size" : "7 DAYS"

}
```

Response metrics will approximately be returned for following intervals:

2020-04-18 to 2020-04-27
2020-04-19 to 2020-04-28
2020-04-20 to 2020-04-29
2020-04-21 to 2020-04-30

The above is for demonstration purpose only and the actual values may differ slightly depending on the current time or if any time is specified in request along with date.

8.4.1. Request

Rolling window request is similar to histogram, "window_size" is the only additional attribute from histogram. The following are additional fields for rolling_window in addition to the common fields :

Field	Data Type	Description	Validation
sampling_interval	Object	Similar to sampling_interval	Accepted time units are "HOURS" and "DAYS". The interval size should be within the requested time range otherwise results in validation error.
window_size	Object	**Required**. This also takes duration for window size and time unit similar to sampling interval.	Accepted time units are "HOURS" and "DAYS".

Note : "bucketing_attributes" is currently not supported for rolling window requests and will be ignored if present in the request .

Sample Request:

8.4.1.1.1. Sample Request

```
{
        "entity": "apteligent.net_error",
        "time_window": {
            "timespan": {
                "duration": 2,
                 "unit": "DAYS"
              }
        },
        "sampling_interval": {
            "duration":1,
            "unit": "DAYS"
        },
        "window_size" : {
            "duration" : 7,
            "unit" : "DAYS"
        },
        "metrics": [{
            "name": "apteligent.net_error.bytes_sent",
            "function": "COUNT_DISTINCT"
        }]
    }
```

8.4.2. Response

Sample Response:

8.4.2.1.1. Sample Response


```
{
    "data": {
        "entity": "apteligent.net_error",
        "result_type": "ROLLING_WINDOW",
        "metadata": {
            "date_attribute_name": "apteligent.net_error.adp_modified_at",
            "attributes": {
                "apteligent.net_error.bytes_sent": {
                    "label": "Data Out",
                    "data_type": "LONG"
                }
            }
        },
        "result": [
            {
                "start_time": "2023-02-14T00:00:00Z",
                "end_time": "2023-02-21T00:00:00Z",
                "metrics_values": [
                    {
                        "name": "apteligent.net_error.bytes_sent",
                        "function": "COUNT_DISTINCT",
                        "value": 0
                    }
                ]
            },
            {
                "start_time": "2023-02-15T00:00:00Z",
                "end_time": "2023-02-22T00:00:00Z",
                "metrics_values": [
                    {
                        "name": "apteligent.net_error.bytes_sent",
                        "function": "COUNT_DISTINCT",
                        "value": 400
                    }
                ]
            },
            {
                "start_time": "2023-02-15T17:00:34.851Z",
                "end_time": "2023-02-22T17:00:34.851Z",
                "metrics_values": [
                    {
                        "name": "apteligent.net_error.bytes_sent",
                        "function": "COUNT_DISTINCT",
                        "value": 0
                    }
                ]
            }
        ]
    }
}
```

9. Omnissa Intelligence Reports APIs

9.1. Report Metadata API

A meta-data API is available to show which attributes are available for a particular entity. The general form of this query is:

GET /v2/meta/integration/{integration}/entity/{entity}/attributes

The following example shows how to retrieve attribute information for integration ***airwatch*** and entity ***user***.

9.1.1. Request

GET https://api.sandbox.data.vmwservices.com/v2/meta/integration/airwatch/entity/user/attributes

9.1.2. Response

Sample Response:

```
200 OK
{
  "data" : [ {
    "classification" : {
      "label" : "User",
      "name" : "USER"
    },
    "data_type" : "DATETIME",
    "entity" : "user",
    "integration" : "airwatch",
    "attribute" : "airwatch.user.user_last_message_sent_date",
    "source_attribute" : "airwatch.user.user_last_message_sent_date",
    "path" : "user_last_message_sent_date",
    "label" : "Last Message Sent Date",
    "description" : "Last Message Sent Date",
    "metadata" : false,
    "hidden_in_uifilter" : false,
    "hidden_in_uiselect" : false,
    "sorting_supported" : true,
    "suggestion_supported" : false,
    "supported_operators" : [ {
      "name" : "BEFORE",
      "label" : "Before",
      "description" : "Before",
      "value" : "<",
      "single" : true,
      "value_required" : true,
      "min_length" : -1
    }, {
      "name" : "AFTER",
      "label" : "After",
      "description" : "After",
      "value" : ">",
      "single" : true,
      "value_required" : true,
      "min_length" : -1
    }, {
      "name" : "BETWEEN",
      "label" : "Between",
```

```
      "description" : "Between",
      "value" : "BETWEEN",
      "single" : false,
      "value_required" : true,
      "min_length" : -1
    } ]
  } ]
  <RESPONSE TRUNCATED FOR READABILITY>
}
```

9.2. Create Reports API

9.2.1. Request - Historical Report

Report creation requires the following information get encoded in a JSON request body:

Field	Value (see example below)	Description	Required/Optional	Default Value
name	API Test Report - 5f5abb88-ea63-43bf-8738-ed0c6a7b345a	Free-form text string naming the report. It must be unique within the context of a customer.	required	
description	Sample report description	Free-form text string describing the report.	optional	<empty>
integration	airwatch	Identifies the integration from which the data will be sourced.	required	
entity	application	Identifies the entity from which the data will be sourced.	required	
column_names	An array of column names	Indicates the attributes of corresponding integration and entity that will appear in the report. **Note**: Column names are expected to be fully qualified. Format of attributes has to be: *<integration-name>.<entity-name>.<attribute-name>* Eg: `airwatch.application.app_name`	required	
filter	A filter expression	Filters the data based on the expression, so the data matching the criteria appears in the report. In this case, the filter	required	

		specified applications whose size exceeds 5MB. Note: column names in the filter conditions should also match the format <integration-name>.<entity-name>.<column-name>		
recipients	An array of email address objects	Indicates who should receive the output of the report.	optional	<empty>
report_type	Report type. Possible values are HISTORICAL and SNAPSHOT	Indicates the type of the report being created.	optional	SNAPSHOT
report_format	Report format. Supported formats are CSV and JSONL	Indicates the output format of the report being created.	optional	CSV
date_range	Date range for HISTORICAL report type	Indicates the date range for time-series data.	required for HISTORICAL report type	Last 12 hours
join_entities_by_integration	Mapping of integration to corresponding entity list	Enables creating reports requiring multi entity joins	optional, computed based on entities involved	

Sample Request:

POST https://api.sandbox.data.vmwservices.com/v2/reports

JSON Request body

```
{
    "name":"API Test Report - 5f5abb88-ea63-43bf-8738-ed0c6a7b345a",
    "description":"Sample report description",
    "integration":"airwatch",
    "entity":"application",
    "column_names":[
        "airwatch.application.app_name"
    ],
    "filter":"airwatch.application.app_dynamic_size_bytes > 5000000",
    "report_type":"HISTORICAL",
    "report_format":"CSV",
    "date_range":{
        "start_date_millis":1627756241000,
        "end_date_millis":1628274581000
    },
    "join_entities_by_integration":{
        "airwatch":["application"]
    }
}
```

Request body can have date range in one of the following formats for time-series reports:

Desired dateRange for fetching data	JSON Format

Last 12 hours	"date_range": {
	"time_span": {
	"duration":12,
	"unit":"HOURS"
	}
	}

Last 7 days	"date_range" : {
	"time_span" : {
	"duration" : 7,
	"unit" : "DAYS"
	}
	}

Custom
** The custom time period can be maximum 28 days.
	"date_range" : {
	"start_date_millis":1653548400000,
	"end_date_millis":1654153140000
	}

9.2.2. Response

Sample Response:

```
{
  "data" : {
    "id" : "20602124-f68b-4dd5-949a-0e45b3d265b0",
    "name" : "
API Test Report - 5f5abb88-ea63-43bf-8738-ed0c6a7b345a",
    "description" : "Sample report description",
    "integration" : "airwatch",
    "entity" : "application",
    "filter" : "airwatch.application.app_dynamic_size_bytes > 5000000",
    "report_type" : "HISTORICAL",
    "report_format" : "CSV",
    "date_range" : {
      "start_date_millis" : 1627756241000,
      "end_date_millis" : 1628274581000
    },
    "join_entities_by_integration" : {
      "airwatch" : [ "application" ]
    },
    "created_at" : "2022-05-24T06:45:42.785Z",
    "created_by" : "22345678-0000-0000-0000-100000000000",
    "modified_at" : "2022-05-24T06:45:42.785Z",
    "entity_label" : "Apps",
    "column_names" : [ "airwatch.application.app_name" ],
    "total_schedules" : 0,
    "total_downloads" : 0,
    "total_recipients" : 0,
    "created_by_details" : {
```

```
      "id" : "22345678-0000-0000-0000-100000000000",
      "display_name" : "display-name-1-0",
      "UserName" : "display-name-1-0"
    },
    "shared_report" : false,
    "share_count" : 0,
    "account_access_level" : "FULL",
    "owner" : true,
    "orphaned" : false,
    "filter_condition" : {
      "parenthesized" : false,
      "nested_attribute" : false,
      "custom_attribute" : false,
      "attribute" : "airwatch.application.app_dynamic_size_bytes",
      "operator" : ">",
      "operands" : [ {
        "operand_type" : "BasicOperand",
        "data_type" : "LONG",
        "value" : 5000000
      } ],
      "operand_collection_present" : false
    },
    "filter_condition_nested_rules" : {
      "type" : "RuleSet",
      "rules" : [ {
        "type" : "Rule",
        "nested_attribute" : false,
        "custom_attribute" : false,
        "attribute" : "airwatch.application.app_dynamic_size_bytes",
        "operator" : ">",
        "operands" : [ {
          "operand_type" : "BasicOperand",
          "data_type" : "LONG",
          "value" : 5000000
        } ],
        "operand_collection_present" : false
      } ]
    }
  }
}
```

9.2.3. Request - Snapshot Report

Sample Request:

POST https://api.sandbox.data.vmwservices.com/v2/reports

JSON Request body

```
{
    "name": "Test Report - V2 Joins",
    "description": "All managed and un-managed apps on devices with good antivirus status and half battery level",
    "filter": " airwatch.device.device_enrollment_status = 'Enrolled' AND airwatch.device._device_antivirus_status IN ( 'Pass' ) AND airwatch.device.device_battery_percent = 50 ",
    "report_type": "SNAPSHOT",
```

```
    "report_format":"CSV",
    "integration":"airwatch",
    "entity":"application",
    "join_entities_by_integration":{
        "airwatch":["application","device"]
    },
    "column_names": [
        "airwatch.application.app_name",
        "airwatch.device.device_friendly_name",
        "airwatch.device.device_platform",
        "airwatch.device.device_os_version",
        "airwatch.application.app_version",
        "airwatch.application.app_package_id",
        "airwatch.application.app_install_status",
        "airwatch.application.app_install_status_reason",
        "airwatch.device.device_app_sample_last_seen",
        "airwatch.application.app_last_seen",
        "airwatch.device.device_last_seen",
        "airwatch.application.app_is_managed",
        "airwatch.device.device_location_group_name",
        "airwatch.application.app_type",
        "airwatch.device.device_enrollment_status",
        "airwatch.application.app_bundle_size_bytes",
        "airwatch.application.app_is_installed"
    ]
}
```

9.2.4. Response

Sample Response:

```
{
  "data" : {
    "id" : "124985bb-e0fa-40d1-b2fb-de2f8e915e38",
    "name" : "Test Report - V2 Joins",
    "description" : "All managed and un-managed apps on devices with good antivirus status and half battery level",
    "integration" : "airwatch",
    "entity" : "application",
    "filter" : " airwatch.device.device_enrollment_status = 'Enrolled'  AND airwatch.device._device_antivirus_status IN ( 'Pass' )  AND  airwatch.device.device_battery_percent = 50 ",
    "report_type" : "SNAPSHOT",
    "report_format" : "CSV",
    "join_entities_by_integration" : {
      "airwatch" : [ "application", "device" ]
    },
    "created_at" : "2022-06-28T19:48:04.590Z",
    "created_by" : "26f5d3cb-7f76-4c5e-aa20-57264ac17280",
    "modified_at" : "2022-06-28T19:48:04.590Z",
    "entity_label" : "Apps",
    "column_names" : [
        "airwatch.application.app_name",
        "airwatch.device.device_friendly_name",
        "airwatch.device.device_platform",
        "airwatch.device.device_os_version",
```

```
        "airwatch.application.app_version",
        "airwatch.application.app_package_id",
        "airwatch.application.app_install_status",
        "airwatch.application.app_install_status_reason",
        "airwatch.device.device_app_sample_last_seen",
        "airwatch.application.app_last_seen",
        "airwatch.device.device_last_seen",
        "airwatch.application.app_is_managed",
        "airwatch.device.device_location_group_name",
        "airwatch.application.app_type",
        "airwatch.device.device_enrollment_status",
        "airwatch.application.app_bundle_size_bytes",
        "airwatch.application.app_is_installed"
    ],
    "total_schedules" : 0,
    "total_downloads" : 0,
    "total_recipients" : 0,
    "created_by_details" : {
      "id" : "26f5d3cb-7f76-4c5e-aa20-57264ac17280",
      "display_name" : "test15@xxx.com",
      "UserName" : "test15@xxx.com"
    },
    "shared_report" : false,
    "share_count" : 0,
    "account_access_level" : "FULL",
    "owner" : true,
    "orphaned" : false,
    "filter_condition" : {
      "parenthesized" : false,
      "nested_attribute" : false,
      "custom_attribute" : false,
      "operand_collection_present" : false,
      "logical_operator" : "AND",
      "lhs" : {
        "parenthesized" : false,
        "nested_attribute" : false,
        "custom_attribute" : false,
        "operand_collection_present" : false,
        "logical_operator" : "AND",
        "lhs" : {
          "parenthesized" : false,
          "nested_attribute" : false,
          "custom_attribute" : false,
          "attribute" : "airwatch.device.device_enrollment_status",
          "operator" : "=",
          "operands" : [ {
            "operand_type" : "BasicOperand",
            "data_type" : "STRING",
            "value" : "Enrolled"
          } ],
          "operand_collection_present" : false
        },
        "rhs" : {
          "parenthesized" : false,
          "nested_attribute" : false,
          "custom_attribute" : false,
          "attribute" : "airwatch.device._device_antivirus_status",
          "operator" : "IN",
```

```
          "operands" : [ {
            "operand_type" : "BasicOperand",
            "data_type" : "STRING",
            "value" : "Pass"
          } ],
          "operand_collection_present" : true
        }
      },
      "rhs" : {
        "parenthesized" : false,
        "nested_attribute" : false,
        "custom_attribute" : false,
        "attribute" : "airwatch.device.device_battery_percent",
        "operator" : "=",
        "operands" : [ {
          "operand_type" : "BasicOperand",
          "data_type" : "LONG",
          "value" : 50
        } ],
        "operand_collection_present" : false
      }
    },
    "filter_condition_nested_rules" : {
      "type" : "RuleSet",
      "logical_operator" : "AND",
      "rules" : [ {
        "type" : "Rule",
        "nested_attribute" : false,
        "custom_attribute" : false,
        "attribute" : "airwatch.device.device_enrollment_status",
        "operator" : "=",
        "operands" : [ {
          "operand_type" : "BasicOperand",
          "data_type" : "STRING",
          "value" : "Enrolled"
        } ],
        "operand_collection_present" : false
      }, {
        "type" : "Rule",
        "nested_attribute" : false,
        "custom_attribute" : false,
        "attribute" : "airwatch.device._device_antivirus_status",
        "operator" : "IN",
        "operands" : [ {
          "operand_type" : "BasicOperand",
          "data_type" : "STRING",
          "value" : "Pass"
        } ],
        "operand_collection_present" : true
      }, {
        "type" : "Rule",
        "nested_attribute" : false,
        "custom_attribute" : false,
        "attribute" : "airwatch.device.device_battery_percent",
        "operator" : "=",
        "operands" : [ {
          "operand_type" : "BasicOperand",
          "data_type" : "LONG",
```

```
          "value" : 50
        } ],
        "operand_collection_present" : false
      } ]
    }
  }
}
```

IMPORTANT

The important part of the JSON response is the "ID" ($.data.id) returned by the system.

"20602124-f68b-4dd5-949a-0e45b3d265b0"

This report identifier is used in subsequent API calls to setup schedules, run the report, and download the results.

> ⚠ Once a report has been created, there are 2 facilities available for running the report. You may run the report any time by calling the "run report" API. You may also schedule the report to execute periodically.

9.3. Run Reports API

9.3.1. Request

> ⚠ Note that the report identifier obtained via the "create report API" (see above) is used in this API call to run the report.

POST https://api.sandbox.data.vmwservices.com/v2/reports/20602124-f68b-4dd5-949a-0e45b3d265b0/run

9.3.2. Response

Sample Response:

```
{
    "data": {
        "active": true,
        "created_at": "2022-06-03T17:28:24.554Z",
        "created_by": "f65716f4-0d44-4c50-8cca-05d1306fbf77",
        "cron_expression_detail": {
            "frequency": "ONCE"
        },
        "id": "749b30e0-6e75-4d58-ba90-3e175e2b8b8e",
        "modified_at": "2022-06-03T17:28:24.554Z",
        "modified_by": "f65716f4-0d44-4c50-8cca-05d1306fbf77",
        "name": "Single run report request 5f5abb88-ea63-43bf-8738-ed0c6a7b345a",
        "report_id": "20602124-f68b-4dd5-949a-0e45b3d265b0",
        "schedule_type": "ADHOC",
        "start": "2022-06-03T17:28:24.553Z"
    }
}
```

The ID returned in the JSON response ("749b30e0-6e75-4d58-ba90-3e175e2b8b8e") is the internal report schedule ID. This identifier is not referenced further in this document.

9.4. Schedule Reports API

Report Schedule creation requires the following information get encoded in a JSON request body:

Field	Value (see example below)	Description	Required	Default Value
name	Schedule Test Hourly	The schedule name	yes	
report_id	20602124-f68b-4dd5-949a-0e45b3d265b0	The report ID returned by the Create Report API	yes	
schedule_type	CRON	CRON (meaning scheduled)	yes	
start	2022-06-03T19:00:00.000Z	The time at which the schedule takes effect (maybe be in the future)	yes	
cron_expression_details	{ "frequency": "HOURLY", "hourly": { "interval": 4 } }	Specifies that the report should be run every 4 hours	yes	

9.4.1. Request

POST https://api.sandbox.data.vmwservices.com/v2/reports/schedules

```
{
    "cron_expression_detail": {
        "frequency": "HOURLY",
        "hourly": {
            "interval": 4
        }
    },
    "name": "Schedule Test Hourly",
    "report_id": "20602124-f68b-4dd5-949a-0e45b3d265b0",
    "schedule_type": "CRON",
    "start": "2022-06-03T19:00:00.000Z"
}
```

9.4.2. Response

Sample Response:

```
{
    "data": {
        "active": true,
        "created_at": "2022-06-03T18:24:56.199Z",
        "created_by": "f65716f4-0d44-4c50-8cca-05d1306fbf77",
        "cron_expression_detail": {
            "frequency": "HOURLY",
            "hourly": {
                "interval": 4
            }
        },
        "id": "5a384bd7-9ac4-46bb-a810-59e0b498d99f",
        "modified_at": "2022-06-03T18:24:56.199Z",
        "modified_by": "f65716f4-0d44-4c50-8cca-05d1306fbf77",
        "name": "Schedule Test Hourly",
        "report_id": "20602124-f68b-4dd5-949a-0e45b3d265b0",
        "schedule_type": "CRON",
        "start": "2022-06-03T19:00:00.000Z"
    }
}
```


9.4.2.1. Additional Scheduling Options

The example above shows ***hourly*** scheduling. The following enumerates the complete list of cron expressions supported:

Desired Frequency	frequency	JSON format

Only once	ONCE	"cron_expression_detail" : {
		"frequency" : "ONCE"
		}

Each hour	HOUR	"cron_expression_detail": {
		"frequency": "HOURLY",
		"hourly": {
		"interval": 4
		}
		}

Each day	DAILY	"cron_expression_detail": {
		"frequency": "DAILY",
		"hour": 17,
		"minute": 15
		}

Each week	WEEKLY	"cron_expression_detail": {
		"frequency": "WEEKLY",
		"hour": 17,
		"minute": 15,
		"weekly": {
		"days_of_week": [
		"SUN",
		"WED"
		]

		} }

Each month	MONTHLY	"cron_expression_detail": {
		"frequency": "MONTHLY",
		"hour": 17,
		"minute": 15,
		"monthly": {
		"day_of_month": 5
		}
		}

Each year	YEARLY	"cron_expression_detail": {
		"frequency": "YEARLY",
		"hour": 17,
		"minute": 15,
		"yearly": {
		"day_of_month": 5,
		"month": "JANUARY"
		}
		}

9.5. Available downloads API

When data from your report execution is available, it displays as an available download in the available downloads API.

POST /v2/reports/{id}/downloads/search

9.5.1. Request

POST https://api.sandbox.data.vmwservices.com/v2/reports/5f2c2fa1-e9ec-4c55-9649-b3fbabf4d116/downloads/search

```
{
    "offset": 0,
    "page_size": 100
}
```

The JSON body can be unspecified (**{}**). This defaults the paging parameters to page_size: 100 and offset:0. The value of these parameters are reflected back in the JSON response below.

9.5.2. Response

Sample Response:

```
{
    "data": {
        "offset": 0,
        "page_size": 100,
        "results": [
            {
                "created_at": "2022-06-03T17:28:47.146Z",
                "created_by": "f65716f4-0d44-4c50-8cca-05d1306fbf77",
                "id": "416c1890-70d5-4261-a440-d2dc402e52cf",
```

```
                "location": "reports/538f619e-2db4-4f07-974b-efb3e5326116/5f2c2fa1-e9ec-4c55-9649-b3fbabf4d116/BK---API-Test1---Enrolled-Devices-2019-06-03-17-28-UTC.csv",
                "modified_at": "2022-06-03T17:29:01.873Z",
                "modified_by": "11223344-5500-0000-0000-000000000000",
                "processing_time_millis": 12660,
                "report_id": "5f2c2fa1-e9ec-4c55-9649-b3fbabf4d116",
                "report_schedule_id": "749b30e0-6e75-4d58-ba90-3e175e2b8b8e",
                "start_time": "2022-06-03T17:28:47.740Z",
                "status": "COMPLETED"
            },
            {
                "created_at": "2022-06-03T17:13:15.545Z",
                "created_by": "f65716f4-0d44-4c50-8cca-05d1306fbf77",
                "id": "397e00fb-5c32-439d-b4fc-a657458c9f6d",
                "location": "reports/538f619e-2db4-4f07-974b-efb3e5326116/5f2c2fa1-e9ec-4c55-9649-b3fbabf4d116/BK---API-Test1---Enrolled-Devices-2019-06-03-17-13-UTC.csv",
                "modified_at": "2022-06-03T17:13:33.616Z",
                "modified_by": "11223344-5500-0000-0000-000000000000",
                "processing_time_millis": 13967,
                "report_id": "20602124-f68b-4dd5-949a-0e45b3d265b0",
                "report_schedule_id": "600300be-7958-4158-a550-dcca31186fd4",
                "start_time": "2022-06-03T17:13:17.546Z",
                "status": "COMPLETED"
            }
        ],
        "total_count": 2
    }
}
```


The JSON body provides "report tracking" identifiers for 2 different data sets that are available for download (both have a status "COMPLETED"):

- "id": "416c1890-70d5-4261-a440-d2dc402e52cf"
- "id": "397e00fb-5c32-439d-b4fc-a657458c9f6d"

These identifiers can now be used to *download* the contents of this run of the report, now or at any other point in the future.

9.6. Download Report API

Using the report tracking identifiers from the previous step, we can now download the data associated with our report. This is a 2-step sequence:

1. Get a URL to the actual location of the report output.
2. Download the report data from that location.

9.6.1. Get the Location of the Report Output

9.6.1.1. Sample Request

GET https://api.sandbox.data.vmwservices.com/v2/reports/tracking/416c1890-70d5-4261-a440-d2dc402e52cf/download

9.6.1.2. Sample Response

```
302 FOUND
date: Mon, 03 Jun 2019 17:52:20 GMT
content-length: 0
```

```
location: https://storage.staging.dpa0.org/reports/538f619e-2db4-4f07-974b-efb3e5326116/5f2c2fa1-e9ec-4c55-9649-b3fbabf4d116/BK---API-Test1---Enrolled-Devices-2019-06-03-17-28-UTC.csv?Expires=1559587940&Signature=We7nUi29zQyNZVdvDSdy6ECfA4bT~eFy0No7Z4n5qz8nnPJuRfrN8JfuIWHwzuayY3qt-g0Bw-yEhFZsXfPUUYEur~sa6JZTtTL2ZLSc3Vj4RmaxHCTD4EF-hWbPOL7S8XQoXyMKR-FTjqS7P80WE0jDepaFEPZjSLXWXBAx16l6nhkGpRzBkblWgGe51bUS19MVdnOyHrMnHe0PT1T7xgEYCeF4tTYyPNpy2wvXTOrXN8KIQ90aR8EBtxnyhdZMZ~6PM49pC0olhoM4jw3BoUx7lpeNkmgjtMxtxIXYMbZAh4E~TC1GMpbHjZp0wopxrNALf8RXT4o5oRsKiSt9jg__&Key-Pair-Id=APKAJP6P5AIT76C66HUQ
```

⚠ The response is an HTTP redirect to a secure URL where the report contents can be downloaded.

9.6.2. Download the Report Output

9.6.2.1. Sample Request (following the redirect)

GET https://storage.staging.dpa0.org/reports/20602124-f68b-4dd5-949a-0e45b3d265b0/5f2c2fa1-e9ec-4c55-9649-b3fbabf4d116/BK---API-Test1---Enrolled-Devices-2019-06-03-17-28-UTC.csv?Expires=1559587940&Signature=We7nUi29zQyNZVdvDSdy6ECfA4bT~eFy0No7Z4n5qz8nnPJuRfrN8JfuIWHwzuayY3qt-g0Bw-yEhFZsXfPUUYEur~sa6JZTtTL2ZLSc3Vj4RmaxHCTD4EF-hWbPOL7S8XQoXyMKR-FTjqS7P80WE0jDepaFEPZjSLXWXBAx16l6nhkGpRzBkblWgGe51bUS19MVdnOyHrMnHe0PT1T7xgEYCeF4tTYyPNpy2wvXTOrXN8KIQ90aR8EBtxnyhdZMZ~6PM49pC0olhoM4jw3BoUx7lpeNkmgjtMxtxIXYMbZAh4E~TC1GMpbHjZp0wopxrNALf8RXT4o5oRsKiSt9jg__&Key-Pair-Id=APKAJP6P5AIT76C66HUQ

9.6.2.2. Sample Response

```
200 OK
content-type: application/octet-stream
content-length: 463736
...


device_last_seen_utc,device_friendly_name,device_corp_liable,device_enrollment_user_name,device_enrollment_user_first_name,device_enrollment_user_last_name,device_enrollment_user_email,device_platform,device_os_version,device_model_name
"2019-05-04-17:40:30 UTC","VELMA's iPad Pro",CorporateDedicated,ws1intel.12983,VELMA,Bvworks,"ws1intel.12983@ws1.intelligent.staging.dpa0.org",Apple,8.4.1,"iPhone SE"
"2019-05-31-13:10:33 UTC","INGER's iPhone 7 Plus",CorporateDedicated,ws1intel.1488,INGER,Becquart,"ws1intel.1488@ws1.intelligent.staging.dpa0.org",Apple,9.0.2,"iPad Air 2"
"2019-04-29-22:36:32 UTC","KRISTEEN's iPhone 6S",CorporateDedicated,ws1intel.13390,KRISTEEN,Dayberry,"ws1intel.13390@ws1.intelligent.staging.dpa0.org",Apple,9.3.2,"iPad Air"
...
```

9.7. Report preview API

9.7.1. Request

POST /v2/reports/{id}/preview

Sample Request:

POST https://api.sandbox.data.vmwservices.com/v2/reports/5f2c2fa1-e9ec-4c55-9649-b3fbabf4d116/preview

JSON request body:

```
{
    "page_size":25,
    "offset":0
}
```

9.7.2. Response

Sample Response:

```
200 OK
{
  "data" : {
    "page_size" : 25,
    "offset" : 0,
    "total_count" : 6385,
    "results" : [ {
      "airwatch.device.device_enrollment_user_name" : "ws1intel.bda44ae7-66eb-42c2-899a-d2af3685d8e2",
      "airwatch.device.device_friendly_name" : "KENYATTA's HP Elite x3",
      "airwatch.windowspatch.winpatch_revision_id" : 228923,
      "airwatch.windowspatch.winpatch_update_id" : "8c196037-dbb0-4eaa-9e0f-254bf83bebe2",
      "airwatch.windowspatch.winpatch_kb_number" : 2124261,
      "airwatch.windowspatch.winpatch_update_status" : "Unknown",
      "airwatch.windowspatch.winpatch_approval_status" : "approved",
      "airwatch.windowspatch.winpatch_assignment_status" : "assigned",
      "airwatch.windowspatch.winpatch_update_classification" : "CriticalUpdates",
      "airwatch.windowspatch.winpatch_approved_date" : 1606984113000,
      "airwatch.windowspatch.winpatch_publish_date" : 1623955447000,
      "airwatch.device.device_enrollment_date" : 1472357078000,
      "airwatch.device.device_enrollment_status" : "EnrollmentInProgress",
      "airwatch.device.device_last_seen" : 1651512997000,
      "airwatch.device.device_enrollment_user_email" : "9ddfe9b1-b623-46b1-9bfc-
a0081d1e4311@ws1.intelligent.staging.dpa0.org",
      "airwatch.device.device_os_version" : "9.0.4",
      "airwatch.device.device_model" : "HP Elite x3"
    } ]
  }
}
< RESPONSE TRUNCATED FOR READABILITY>
```

9.8. Report search API

9.8.1. Request

POST /v2/reports/search

Sample Request:

POST https://api.sandbox.data.vmwservices.com/v2/reports/search

JSON Request body:

```
{
    "offset":0,
    "page_size":10,
```

```
    "sort_ons":[{
        "field":"modified_at",
        "order":"DESC"
    }]
}
```

9.8.2. Response

Sample Response:

```
200 OK
{
  "data" : {
    "page_size" : 10,
    "offset" : 0,
    "total_count" : 130,
    "results" : [ {
      "id" : "31118250-7d6a-4bb2-befb-72f50e47d3b9",
      "name" : "Windows Antivirus Updates",
      "description" : "Devices with good antivirus status",
      "integration" : "airwatch",
      "entity" : "windowspatch",
      "filter" : " airwatch.device._device_antivirus_status IN ( 'Pass' )  AND
airwatch.windowspatch._device_os_version = '10.0.1' ",
      "report_type" : "SNAPSHOT",
      "report_format" : "CSV",
      "created_at" : "2022-06-09T07:14:29.441Z",
      "created_by" : "26f5d3cb-7f76-4c5e-aa20-57264ac17280",
      "modified_at" : "2022-06-09T07:14:29.441Z",
      "entity_label" : "Windows OS Updates",
      "column_names" : [
            "airwatch.device.device_enrollment_user_name",
            "airwatch.device.device_friendly_name",
            "airwatch.windowspatch.winpatch_revision_id",
            "airwatch.windowspatch.winpatch_update_id",
            "airwatch.windowspatch.winpatch_update_status",
            "airwatch.windowspatch.winpatch_approval_status",
            "airwatch.windowspatch.winpatch_assignment_status",
            "airwatch.device.device_enrollment_date",
            "airwatch.device.device_enrollment_status",
            "airwatch.device.device_last_seen",
            "airwatch.device.device_enrollment_user_email",
            "airwatch.device.device_model",
            "airwatch.windowspatch.winpatch_kb_subject",
            "airwatch.windowspatch.winpatch_update_type",
        ],
      "total_schedules" : 1,
      "total_downloads" : 1,
      "total_recipients" : 1,
      "shared_report" : false,
      "share_count" : 0,
      "account_access_level" : "FULL",
      "owner" : true,
      "orphaned" : false,
      "filter_condition" : {
        "parenthesized" : false,
        "nested_attribute" : false,
        "custom_attribute" : false,
```

```
        "operand_collection_present" : false,
        "logical_operator" : "AND",
        "lhs" : {
          "parenthesized" : false,
          "nested_attribute" : false,
          "custom_attribute" : false,
          "attribute" : "airwatch.device._device_antivirus_status",
          "operator" : "IN",
          "operands" : [ {
            "operand_type" : "BasicOperand",
            "data_type" : "STRING",
            "value" : "Pass"
          } ],
          "operand_collection_present" : true
        },
        "rhs" : {
          "parenthesized" : false,
          "nested_attribute" : false,
          "custom_attribute" : false,
          "attribute" : "airwatch.windowspatch._device_os_version",
          "operator" : "=",
          "operands" : [ {
            "operand_type" : "BasicOperand",
            "data_type" : "STRING",
            "value" : "10.0.1"
          } ],
          "operand_collection_present" : false
        }
      },
      "filter_condition_nested_rules" : {
        "type" : "RuleSet",
        "logical_operator" : "AND",
        "rules" : [ {
          "type" : "Rule",
          "nested_attribute" : false,
          "custom_attribute" : false,
          "attribute" : "airwatch.device._device_antivirus_status",
          "operator" : "IN",
          "operands" : [ {
            "operand_type" : "BasicOperand",
            "data_type" : "STRING",
            "value" : "Pass"
          } ],
          "operand_collection_present" : true
        }, {
          "type" : "Rule",
          "nested_attribute" : false,
          "custom_attribute" : false,
          "attribute" : "airwatch.windowspatch._device_os_version",
          "operator" : "=",
          "operands" : [ {
            "operand_type" : "BasicOperand",
            "data_type" : "STRING",
            "value" : "10.0.1"
          } ],
          "operand_collection_present" : false
        } ]
      }
```

```
    } ]
  }
<RESPONSE TRUNCATED FOR READABILITY>
}
```

9.9. Set Report recipients API

This API allows you to specify the recipients of a report. This functionality is identical to specifying recipients when the report is created.

9.9.1. Request

POST https://api.sandbox.data.vmwservices.com/v2/reports/5f2c2fa1-e9ec-4c55-9649-b3fbabf4d116/recipients

JSON request body

```
{
    "recipients": [
        {
            "email": "margaret.thatcher@omnissa.com"
        },
        {
            "email": "paul.revere@omnissa.com"
        }
    ]
}
```

9.9.2. Response

Sample Response:

```
200 OK
{
    "data": {
        "recipients": [
            {
                "created_at": "2022-06-03T18:10:51.752Z",
                "created_by": "f65716f4-0d44-4c50-8cca-05d1306fbf77",
                "email": "margaret.thatcher@omnissa.com"
            },
            {
                "created_at": "2022-06-03T18:10:51.752Z",
                "created_by": "f65716f4-0d44-4c50-8cca-05d1306fbf77",
                "email": "paul.revere@omnissa.com"
            }
        ],
        "report_id": "5f2c2fa1-e9ec-4c55-9649-b3fbabf4d116"
    }
}
```

9.10. Get Report recipients API

To determine which recipients are associated with a report, use the GET report recipients API.

9.10.1. Request

GET https://api.sandbox.data.vmwservices.com/v2/reports/5f2c2fa1-e9ec-4c55-9649-b3fbabf4d116/recipients

9.10.2. Response

Sample Response:

```
200 OK
{
    "data": {
        "recipients": [
            {
                "created_at": "2019-06-03T18:16:31.262Z",
                "created_by": "f65716f4-0d44-4c50-8cca-05d1306fbf77",
                "email": "margaret.thatcher@omnissa.com"
            },
            {
                "created_at": "2019-06-03T18:16:31.262Z",
                "created_by": "f65716f4-0d44-4c50-8cca-05d1306fbf77",
                "email": "paul.revere@omnissa.com"
            }
        ],
        "report_id": "5f2c2fa1-e9ec-4c55-9649-b3fbabf4d116"
    }
}
```

10. API Call Limits

The calculations of API request amounts allow sufficient capacity for your organization's number of admin users and user licenses. Omnissa Workspace ONE license levels categorize rate limits by calls per second, calls per hour, and calls per 24 hours.

Table 1. API Call Limits Per Organization

Omnissa Workspace ONE License Level	Total Calls per Second	Total Calls per Hour	Total Calls per 24 Hours
Standard	100	1000	15000
Advanced	100	1000	15000
Enterprise	100	1000	15000
Intelligence Add-On	100	1000	15000