Dell EMC vCloud Director Data Protection Extension REST API

Version 19.1

Reference Guide

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PREFACE

As part of an effort to improve its product lines, Dell EMC periodically releases revisions of its software and hardware. Therefore, some functions described in this document might not be supported by all versions of the software or hardware currently in use. The product release notes provide the most up-to-date information on product features.

Contact the technical support professional when a product does not function correctly or does not function as described in this document.

Note

This document was accurate at publication time. To find the latest version of this document, go to Online Support (https://support.EMC.com).

Purpose

This document describes the backup REST API extensions that have been made available in the vCloud Director Data Protection Extension (vCD DPE). These extensions are in addition to the standard VMware vCloud Director API.

Revision history

The following table presents the revision history of this document.

Table 1 Revision history

Revision	Date	Description
01	May 20, 2019	First release of vCloud Director Data Protection Extension 19.1

Related documentation

The following publications provide additional information:

- *vCloud Director Data Protection Extension Release Notes*
- *vCloud Director Data Protection Extension Installation and Upgrade Guide*
- *vCloud Director Data Protection Extension Administration and User Guide*
- *vCloud Director Data Protection Extension Message Bus Specification Reference Guide*
- *Avamar for VMware User Guide*

Special notice conventions used in this document

These conventions are used for special notices.

DANGER

Indicates a hazardous situation which, if not avoided, results in death or serious injury.

WARNING

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

Addresses practices that are not related to personal injury.

Note

Presents information that is important, but not hazard-related.

Typographical conventions

These type style conventions are used in this document.

Table 2 Typographical conventions

Bold	Used for names of interface elements, such as names of windows, dialog boxes, buttons, fields, tab names, key names, and menu paths (what the user specifically selects or clicks)
Italic	Used for full titles of publications that are referenced in text
`Monospace`	Used for: • System code • System output, such as an error message or script • Pathnames, filenames, prompts, and syntax • Commands and options
Monospace italic	Used for variables
`Monospace bold`	Used for user input
[ ]	Square brackets enclose optional values
|	Vertical bar indicates alternate selections - the bar means “or”
{ }	Braces enclose content that the user must specify, such as x or y or z
...	Ellipses indicate nonessential information that is omitted from the example

Where to get help

The Avamar support page provides access to licensing information, product documentation, advisories, and downloads, as well as how-to and troubleshooting information. This information may resolve a product issue before contacting Customer Support.

To access the Avamar support page:

1. Go to https://www.dell.com/support/home/us/en/19.
2. Type a product name in the **Enter a Service Tag, Serial Number, Service Request, Model, or Keyword** search box.
3. Select the product from the list that appears. When you select a product, the **Product Support** page loads automatically.
4. (Optional) Add the product to the **My Products** list by clicking **Add to My Saved Products** in the upper right corner of the **Product Support** page.

Comments and suggestions

Comments and suggestions help to continue to improve the accuracy, organization, and overall quality of the user publications. Send comments and suggestions about this document to DPAD.Doc.Feedback@emc.com.

Please include the following information:

- Product name and version
- Document name, part number, and revision (for example, 01)
- Page numbers
- Other details to help address documentation issues

CHAPTER 1

Backup Service

This section includes the following topics:

Backup service

The vCloud Director Data Protection Extension (vCD DPE) exposes a direct integrated extension to the standard VMware vCloud Director API. The vCD DPE REST API extension adds a number of new operations to the existing vApp and Org vDC objects. The vCD DPE REST API extension also adds a collection of policy and configuration related objects under a new backup service root object.

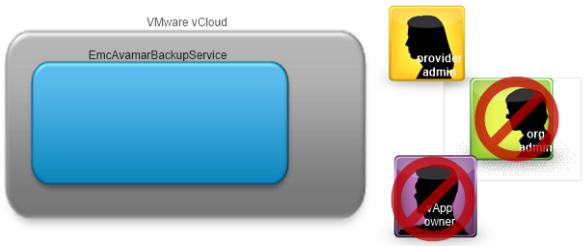
A backup service represents a product that manages vApp backups in the context of a vCloud. An example would be the Dell EMC Backup and Recovery Suite, which encapsulates Avamar and Data Domain backup appliances.

All vCloud REST API extensions under `/api/admin/extension/EmcBackupService` are accessible to SYSTEM (provider) admin accounts only.

The backup service extension is injected at the root level of the vCloud REST API. All vCloud REST API extensions under `/api/admin/extension/EmcBackupService` are accessible to SYSTEM (provider) admin accounts only.

This document includes examples of many, but not all, supported operations. The table at the end of this document contains the complete list of supported operations on newly exposed and existing vCloud REST API objects.

Figure 1 Backup service



The following are some of the supported operations on a Backup Service:

- CRUD on Org Registrations
- CRUD on backup appliances
- CRUD on backup repositories
- CRUD on backup schedules
- CRUD on backup retention policies
- CRUD on backup option sets
- CRUD on `BackupPolicyTemplateCatalogs`
- CRUD on `BackupPolicyTemplates`

Note

CRUD = create, read, update, and delete.

Most objects have a revision attribute which is automatically initialized on object creation, and automatically altered on object updates. During an update operation, the previous version should be specified in any input parameter. The REST API uses this as a check for conflicting update attempts. If the revision does not match the parameter on an update operation, the operation returns an error indication. A consumer of the REST API should treat this revision strings as an opaque object and

not make any assumptions as to it being convertible to a time, or as to it always being an incrementing value.

Conventions

In this document the request URLs are presented as "`GET /api/...`" as they are represented in the actual request bytes sent across the network. Where the full URL might be "`https://vcloud.example.com/api/...`" the actual request omits the protocol and host, as presented in this document.

Note also that common request and response headers are also omitted, for clarity, in the examples. URLs in the examples are abbreviated as-needed to prevent line wrap.

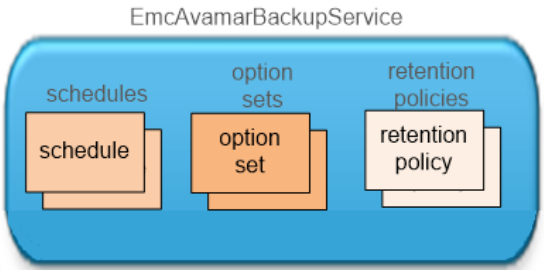
In keeping with the style of the VMWare vCloud API Programming Guide, most of the XML objects or entities described in this document, including entities which fall under the class of a ReferenceType, meaning a reference to another entity, will include the following common attributes: name, id, href and type. Not all examples of these entities are shown with all of these attributes, and in many cases it is not required for each of these attributes to be present. Typically only the href and type attributes are required in most circumstances. Therefore it should not be considered an error of the specification or the implementation if the examples and the implementation do not always match perfectly.

Uses of response codes in this API follow the same conventions as the vCloud Director API.

Backup policy overview

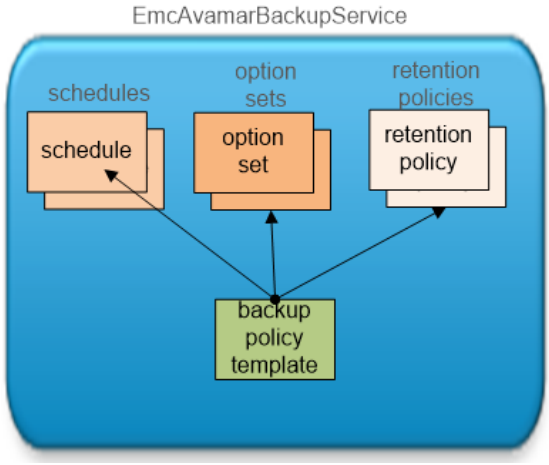
Schedules, retention policies, and backup option sets are configured at the cloud level. These are exposed under the backup service. These are visible globally across the cloud, but only to provider admins.

Figure 2 Avamar Backup Service



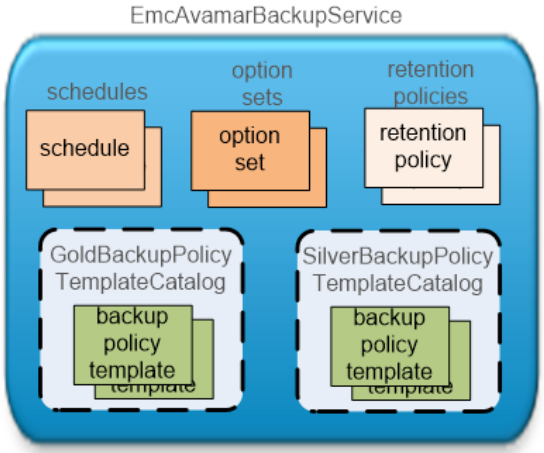
A backup policy template consists of a reference to a schedule, a retention policy, and a backup option set. These are configured and visible only to provider admins.

Figure 3 Avamar Backup Service Backup Policy Template



A backup policy template catalog is a container that can hold multiple backup policy templates. Multiple catalogs can be composed. These catalogs have names, for example Gold, Silver and Bronze. These are configured and visible only to provider admins.

Figure 4 Avamar Backup Service Backup Policy Template Catalog



API versioning

Starting with release 2.0.4, the vCD DPE REST APIs are versioned. Versioning gives the clients flexibility to use new features as they are ready to consume them, and to continue to use the older APIs even after upgrading to later software versions. The plan is to support two concurrent API versions in every release.

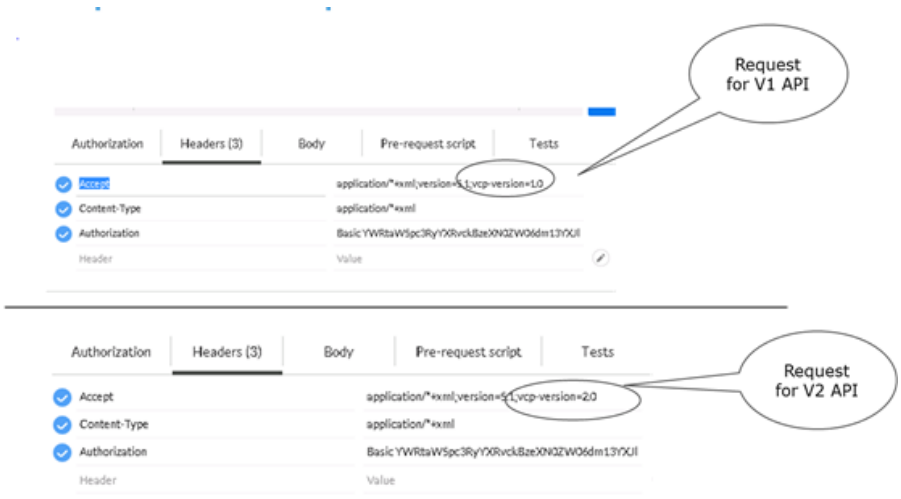
The versioning scheme uses a content negotiation approach, where the `Accept` header of a request specifies the requested version of the vCD DPE REST API.

Specify a version in the accept-header as follows:

```
(tag "vcp-version") : application/*+xml;version=5.1;vcp-version=3.0
```

Request headers

Figure 5 Request headers



- All APIs that were released before version 2.0.4 are tagged as `vcp-version=1.0`.
- The APIs that were released in versions 2.0.4 and 2.0.5 are tagged as `vcp-version=2.0`.
- The APIs that were released in version 3.0 and later are tagged as `vcp-version=3.0`.
- The APIs that were released in version 4.0 and later are tagged as `vcp-version=4.0`.

Specifying a `vcp-version` in the `Accept` header is optional. If you do not specify a `vcp-version`, the request defaults to version 1.0. If you specify a `vcp-version`, the vCD DPE resolves the API to the specified version, or to the closest known version released.

For example: If you specify `vcp-version=2.3`, the vCD DPE uses the version 2.0 API. Similarly, if you specify `vcp-version=1.5`, the vCD DPE uses the version 1.0 API.

If an API that was implemented in a later version, is requested for an earlier version, the call returns the response `METHOD_NOT_ALLOWED`.

For example:

Header

```
Accept : application/*+xml;version=5.1;vcp-version=1.0
```

Request

```
GET /api/admin/vApp/22/backupPolicies
```

Response

```
200 OK

<Error xmlns="http://www.vmware.com/vcloud/v1.5" majorErrorCode="405"
              minorErrorCode="METHOD_NOT_ALLOWED"
vendorSpecificErrorCode="01700"
              message="01700: Method not allowed." />
```

Note

For some APIs, the request body, or response body varies across versions. Any such differences are documented here. Note the API version for commands that have changed between releases, or for new commands. If a command does not specify an API version, the behavior is unchanged from version 1.0.

Resources available on a Backup Service

Operation
GET /api/admin/extension/EmcBackupService

Description
Retrieve the representation of a registered backup service.

Input parameters
None

Output parameters
Produce media type(s):
backupService+xml

Output type:
BackupServiceType

Example request

```
GET /api/admin/extension/EmcBackupService
```

Example response

```
200 OK
Content-Type: backupService+xml

<BackupServiceReferences>
    <BackupService href="https://vcloud.example.com/api/admin/
extension/EmcBackupService" type="application/
vnd.emc.vcp.backupService+xml">
        <IsEnabled>true</IsEnabled>
        <Link href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupAppliances" rel="down" type="application/
vnd.emc.vcp.backupAppliance+xml"/>
        <Link href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRepositories" rel="down" type="application/
vnd.emc.vcp.backupRepository+xml"/>
        <Link href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/orgRegistrations" rel="down" type="application/
vnd.emc.vcp.orgRegistration+xml"/>
        <Link href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupPolicyTemplateCatalogs" rel="down"
type="application/vnd.emc.vcp.backupPolicyTemplateCatalog+xml"/>
        <Link href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupSchedules" rel="down" type="application/
vnd.emc.vcp.backupSchedule+xml"/>
        <Link href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRetentions" rel="down" type="application/
vnd.emc.vcp.backupRetention+xml"/>
        <Link href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupOptionSets" rel="down" type="application/
vnd.emc.vcp.backupOptionSet+xml"/>
        <Product>vCloud Director Data Protection Extension
         - Backup Service</Product>
        <Version>18.2</Version>
        <Url>https://vcloud.example.com/api/admin/extension/
EmcBackupService</Url>
```

```
    </BackupService>
</BackupServiceReferences>
```

CHAPTER 2

Getting Started

This section describes the workflow for using the vCD Data Protection Extension REST APIs to set up and configure the system and use the functionality that is provided by data protection and recovery APIs.

Login

This is a standard login to the vCloud Director with HTTP GET request. It creates a session with the vCD. It is the very first step that needs to be done in order to start a new session with the vCD. You may need to repeat this step when the session expires. Please refer to the vCloud Director REST API documentation for more details.

Request
GET /api/login

Response
GET /api/login

Returns a list of organizations in the vCloud Director.

The output response also contains an authorization token in this format: x-vcloud-authorization:

This header should be specified in every other API operation requests, to certify that you are authorized.

Register Organization

You must first register your organizations with Avamar Plug-in for vCloud Director.

Registering an organization allows you to associate any of its virtual datacenters with a backup appliance, and to assign backup and replication policies to it.

Add one or more backup appliances

Backup appliances allow you to associate the vCenters that are managed by your vCloud Director to an Avamar system. This association allows Avamar to connect directly to your vCenter to provide backup and restore operations. You can add multiple backup appliances if needed, and use them simultaneously to extend backup capacity based on the size of your cloud.

Register vCenter

The vCD Data Protection Extension requires Administrative privileges to communicate with the vCenter(s) that provide the virtual infrastructure and resources for the cloud. This step provides vCenter identification information and credentials to the backup appliance.

Create a Backup Policy Template Catalog

A backup policy template catalog represents a named collection of BackupPolicyTemplates. This is intended to allow a provider to assign a group of BackupPolicyTemplates to a virtual datacenter.

Each Backup Policy Template defines a schedule, retention information and an option set, which will be used by the data protection system for backups.

Create Policy Templates

Now that the catalog has been created, the next step is to configure policy templates that can be used for the Organization. A policy template contains a schedule, retention information, and an option set that you define based on customer needs. Following are the steps to create a policy template with the necessary components of a template.

You can assign a single policy template to an organization virtual datacenter to protect all of the vApps that is contains. You can also assign an alternate policy to a vApp within the virtual datacenter to override any parent datacenter default policy that exists.

Create Schedule
This step creates a backup schedule that can be used in the policy template. The schedule is used by the underlying data protection system to trigger normal backups of the entities that are attached to the backup policy.

Create Retention
This step configures the retention period for which backups are to be retained. It can be attached to one or more policy templates.

Create Optionset
This step configures options that are used by the underlying data protection system. It can be attached to one or more policy templates.

Create Policy Template
Now that the individual components of the template have been created, they can be bundled together in a policy template. This template can be used by Org Admins to configure backup policies for virtual datacenters.

Add Policy Template to Catalog

This step adds the policy template created above, to the catalog. The templates added to the catalog can now be accessed by Org Administrators to instantiate backup policies for their virtual datacenters.

Create Backup Repository

This step configures a backup appliance created above with a virtual datacenter. The backup repository needs to be configured in order to do backups and/or restores.

Create Backup Policy

We now need to configure a backup policy that can be used for backing up entities in the virtual datacenter.

Set Default Backup Policy

You can designate one policy as the default policy for the virtual datacenter. The default policy will automatically protect all existing and future vApps in the virtual datacenter.

Backup and Restore

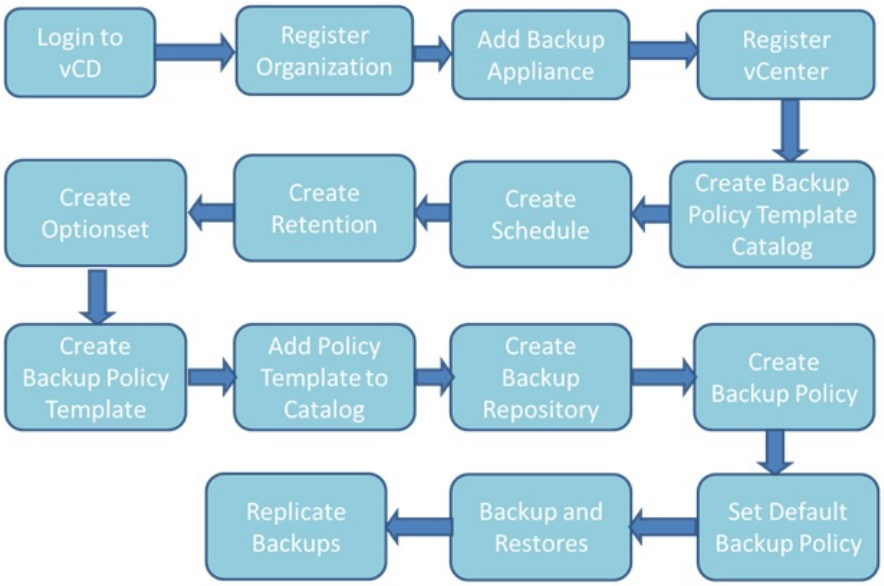
At this point, the system has been configured to proceed with adhoc and/or scheduled backups; and restores of those backups.

Replication

If it is desired to set up replication between two appliances, please see section below on replication.

Workflow at a glance

Figure 6 Workflow



CHAPTER 3

Backup Schedule

A backup schedule represents a definition of a repeating time period during which a backup will be attempted. A backup schedule is tied to a specific time zone.

Add a backup schedule to a backup service

Operation
POST /api/admin/extension/EmcBackupService/backupSchedules

Description
Create a new backup schedule that can be referenced cloud-wide.

Input parameters
Consume media type(s):
backupSchedule+xml

Input type:
BackupScheduleType

Output parameters
Produce media type(s):
backupScheduleParams+xml

Output type:
BackupScheduleParamsType

Example request

```
POST /api/admin/extension/EmcBackupService/backupSchedules
Content-Type: backupScheduleParams+xml

<BackupScheduleParams>
                <BackupSchedule name="Daily Schedule-1AM-6AM-5PM">
                                <NativeTimezone>America/Los_Angeles</
NativeTimezone>

<ActivationInterval>2007-03-01T13:00:00/2008-05-11T15:30:00</
ActivationInterval>
                                <Description>Pacific Gold service
daily schedule</Description>
                                <IsEnabled>false</IsEnabled>
                                <BackupScheduleType>DailyRepeat</
BackupScheduleType>
                                <StartHours>1,6,17</StartHours>
                                <BackupWindowDuration>PT3H</
BackupWindowDuration>
                </BackupSchedule>
</BackupScheduleParams>
```

Example response

```
201 Created
Content-Type: backupSchedule+xml

<BackupSchedule
    id="221"
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupSchedule/221"
    name="Daily Schedule-1AM-6AM-5PM"
    revision="1">
    <Description>Pacific Gold service daily schedule</Description>

<ActivationInterval>2007-03-01T13:00:00.000/2014-05-11T15:30:00.000</
ActivationInterval>
    <BackupScheduleType>DailyRepeat</BackupScheduleType>
    <BackupWindowDuration>PT3H</BackupWindowDuration>
    <NativeTimezone>America/Los_Angeles</NativeTimezone>
                <StartHours>1,6,17</StartHours>
</BackupSchedule>
```

Update a backup schedule

Operation
PUT /api/admin/extension/EmcBackupService/backupSchedule/{id}

Description
Update a backup schedule. If the revision attribute that is passed in the input parameters does not match the current state of the backup schedule, the operation fails (response = 409 Conflict). The revision attribute in the backup schedule is automatically incremented and returned in the output parameters after a successful update.

Input parameters
Consume media type(s):
backupSchedule+xml

Input type:
BackupPolicyScheduleType

Output parameters
Produce media type(s):
backupSchedule+xml

Output type:
BackupPolicyScheduleType

Example request

```
PUT /api/admin/extension/EmcBackupService/backupSchedule/55
Content-Type: backupSchedule+xml

<BackupSchedule
    name="Daily Schedule-1AM-6AM-5PM"
    type="backupSchedule+xml"
    revision=”1”
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupSchedule/55">
    <NativeTimezone>America/Los_Angeles</NativeTimezone>
    <ActivationInterval>2007-03-01T13:00:00/2008-05-11T15:30:00</
ActivationInterval>
    <Description>Pacific Gold service daily schedule</Description>
    <IsEnabled>true</IsEnabled>
    <BackupScheduleType>DailyRepeat</BackupScheduleType>
    <StartHours>1,6,17</StartHours>
    <BackupWindowDuration>PT4H</BackupWindowDuration>
</BackupSchedule>
```

Example response

```
200 OK
Content-Type: backupSchedule+xml

<BackupSchedule
    id="221"
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupSchedule/221"
    name="Daily Schedule-1AM-6AM-5PM"
    revision="2">
    <Description>New Pacific Gold service daily schedule</Description>

<ActivationInterval>2007-03-01T13:00:00.000/2014-05-11T15:30:00.000</
ActivationInterval>
    <BackupScheduleType>DailyRepeat</BackupScheduleType>
    <BackupWindowDuration>PT3H</BackupWindowDuration>
    <NativeTimezone>America/Los_Angeles</NativeTimezone>
```

```
    <StartHours>1,6,17</StartHours>
</BackupSchedule>
```

Delete a backup schedule associated with a backup service

Operation
DELETE /api/admin/extension/EmcBackupService/backupSchedule/{id}

Description
Delete a backup schedule that is associated with a backup service. If the backup schedule is referenced by a backup policy template, the delete operation fails (response = 409 Conflict).

Input parameters
None

Output parameters
None

Example request

```
DELETE /api/admin/extension/EmcBackupService/backupSchedule/125
```

Example response

```
204 No Content
```

Get list of backup schedules associated with a backup service

Operation
GET /api/admin/extension/EmcBackupService/backupSchedules

Description
Retrieve backup schedules that are associated with a backup service.

Input parameters
None

Output parameters
Produce media type(s):
backupScheduleRefListType+xml

Output type:
BackupScheduleRefListType

Example request

```
GET /api/admin/extension/EmcBackupService/backupSchedules
```

Example response

```
200 OK
Content-Type: backupScheduleRefListType+xml

<BackupScheduleRefList
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupSchedules">
    <BackupScheduleRef
        id="aa5"
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupSchedule/aa5"
        name="DailySchedule"/>
```

```
    <BackupScheduleRef
        id="2bb"
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupSchedule/2bb"
        name="DailySchedule"/>
    <BackupScheduleRef
        id="7cf"
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupSchedule/7cf"
        name="MonthlySchedule"/>
    <BackupScheduleRef
        id="7a3"
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupSchedule/7a3"
        name="MonthlySchedule"/>
</BackupScheduleRefList>
```

Backup Schedule types

This section provides you information on the backup schedule types.

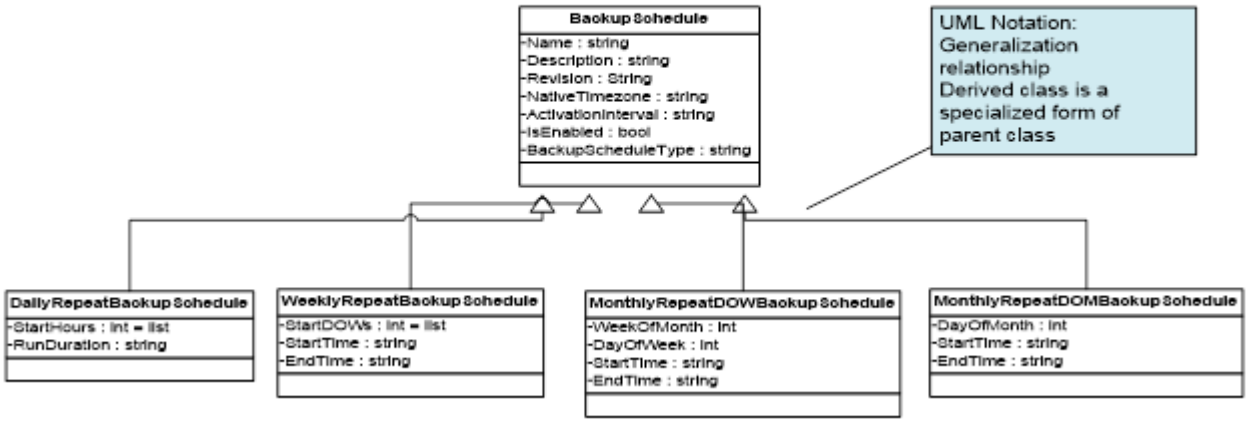
Table 3 Backup Schedule Types

Element	Description
DailyRepeat	Repeats every day at specific times
WeeklyRepeat	Repeats Weekly on specific days, at same time each day
MonthlyRepeatDOM	Repeats monthly on a single specific day of month (For example, 1st of month)
MonthlyRepeatDOW	Repeats monthly on a single specific day in a specific week (For example, 1st Monday of 1st week)
OnDemand	Used to provide ad-hoc backup only. There is no schedule

Backup Schedule Object Taxonomy

This section provides you information on the backup schedule object taxonomy.

Figure 7 Backup Schedule Object taxonomy



BackupSchedule elements

This section provides you information on the BackupSchedule elements.

Table 4 BackupSchedule elements

Element	Type
NativeTimezone	String (Java TZ)
ActivationInterval	String (ISO 8601 interval with start end)
Description	String
BackupScheduleType	String

Elements that are unique to BackupSchedule with DailyRepeat BackupScheduleType

This section provides you information on the elements unique to the backup schedule with DailyRepeat BackupScheduleType.

Table 5 BackupSchedule with DailyRepeat BackupScheduleType

Element	Type	Description
StartHours	List of up to 24 integers	Start-hour (0-23) entries where 0=midnight. A backup is attempted every day at this time, or a subsequent time within the "backup window" extending from this time to the time calculated by adding the maximum duration to this time. Start-hour entries are assumed to be based on the NativeTimezone of the schedule.
BackupWindowDuration	String (ISO 8601 duration format)	Maximum run duration. This single duration applies to all chosen start times in the list.

Elements unique to BackupSchedule with WeeklyRepeat BackupScheduleType

This section provides you information on the elements unique to the backup schedule with WeeklyRepeat BackupScheduleType.

Table 6 BackupSchedule with WeeklyRepeat BackupScheduleType

Element	Type	Description
StartDOWs	List of up to 7 integers	Day-of-week entries indicating the days to try a backup (1-7 where 1=Monday)
StartTime	String (ISO 8601 time format)	Start time. This start time applies to every chosen day-of-week in the list. The NativeTimezone element specifies the time zone and is assumed, so time zone should not be specified in this element.
EndTime	String (ISO 8601 time format)	End time. This end time applies to every chosen day-of-week in the list. Time zone should not be specified in this element.

Elements that are unique to BackupSchedule with MonthlyRepeatDOM BackupScheduleType

This section provides you information on the elements unique to the backup schedule with MonthlyRepeatDOM BackupScheduleType.

Table 7 BackupSchedule with MonthlyRepeatDOM BackupScheduleType

Element	Type	Description
DayOfMonth	Integer (signed)	A single entry indicating the day to try a backup each month (1 to 28, -1 where 1=first day of month, -1=last day of month, etc.)
StartTime	String (ISO 8601 time format)	Start time. This start time applies on the specified day of month. The NativeTimezone element specifies the time zone and is assumed, so time zone should not be specified in this element.
EndTime	String (ISO 8601 time format)	End time. This end time applies on the specified day of month. Time zone should not be specified in this element.

Elements unique to BackupSchedule with MonthlyRepeatDOW BackupScheduleType

This section provides you information on the elements unique to the backup schedule with MonthlyRepeatDOW BackupScheduleType.

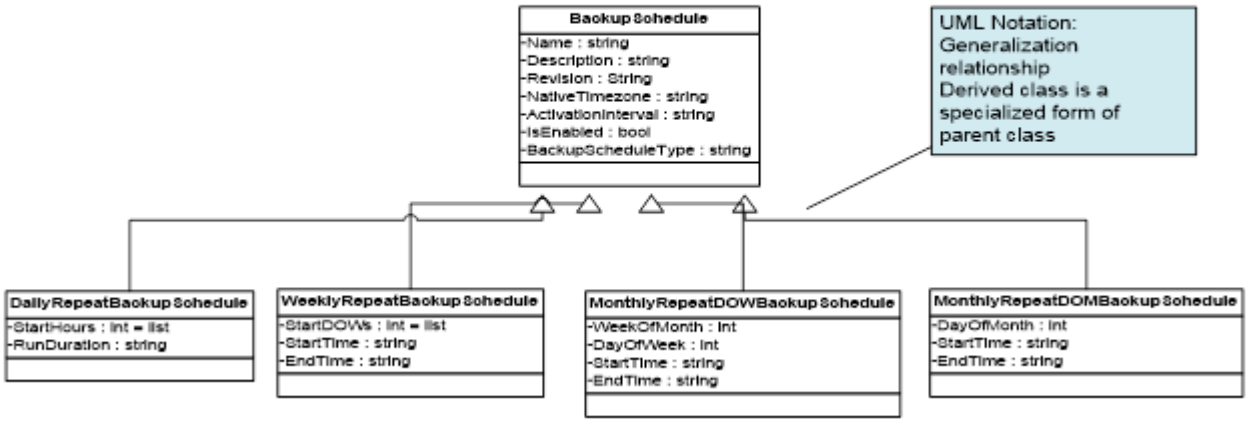
Table 8 BackupSchedule with MonthlyRepeatDOW BackupScheduleType

Element	Type	Description
WeekOfMonth	Integer (signed)	A single entry indicating the day to try a backup each month (1 to 28, -1 where 1=first day of month, -1=last day of month, etc.)
StartTime	String (ISO 8601 time format)	Start time. This start time applies to every chosen day-of-week in the list. The NativeTimezone element specifies the time zone and is assumed, so time zone should not be specified in this element.
EndTime	String (ISO 8601 time format)	End time. This end time applies to every chosen day-of-week in the list. Time zone should not be specified in this element.
DayofWeek	Integer	Indicates the day of week to attempt a backup (1-7 where 1=Monday)

Backup Schedule Object Taxonomy

This section provides you information on the backup schedule object taxonomy.

Figure 8 Backup Schedule Object taxonomy



BackupSchedule elements

This section provides you information on the BackupSchedule elements.

Table 9 BackupSchedule elements

Element	Type
NativeTimezone	String (Java TZ)
ActivationInterval	String (ISO 8601 interval with start end)
Description	String
BackupScheduleType	String

Elements that are unique to BackupSchedule with DailyRepeat BackupScheduleType

This section provides you information on the elements unique to the backup schedule with DailyRepeat BackupScheduleType.

Table 10 BackupSchedule with DailyRepeat BackupScheduleType

Element	Type	Description
StartHours	List of up to 24 integers	Start-hour (0-23) entries where 0=midnight. A backup is attempted every day at this time, or a subsequent time within the "backup window" extending from this time to the time calculated by adding the maximum duration to this time. Start-hour entries are assumed to be based on the NativeTimezone of the schedule.
BackupWindowDuration	String (ISO 8601 duration format)	Maximum run duration. This single duration applies to all chosen start times in the list.

Elements unique to BackupSchedule with WeeklyRepeat BackupScheduleType

This section provides you information on the elements unique to the backup schedule with WeeklyRepeat BackupScheduleType.

Table 11 BackupSchedule with WeeklyRepeat BackupScheduleType

Element	Type	Description
StartDOWs	List of up to 7 integers	Day-of-week entries indicating the days to try a backup (1-7 where 1=Monday)
StartTime	String (ISO 8601 time format)	Start time. This start time applies to every chosen day-of-week in the list. The NativeTimezone element specifies the time zone and is assumed, so time zone should not be specified in this element.
EndTime	String (ISO 8601 time format)	End time. This end time applies to every chosen day-of-week in the list. Time zone should not be specified in this element.

Elements that are unique to BackupSchedule with MonthlyRepeatDOM BackupScheduleType

This section provides you information on the elements unique to the backup schedule with MonthlyRepeatDOM BackupScheduleType.

Table 12 BackupSchedule with MonthlyRepeatDOM BackupScheduleType

Element	Type	Description
DayOfMonth	Integer (signed)	A single entry indicating the day to try a backup each month (1 to 28, -1 where 1=first day of month, -1=last day of month, etc.)
StartTime	String (ISO 8601 time format)	Start time. This start time applies on the specified day of month. The NativeTimezone element specifies the time zone and is assumed, so time zone should not be specified in this element.
EndTime	String (ISO 8601 time format)	End time. This end time applies on the specified day of month. Time zone should not be specified in this element.

Elements unique to BackupSchedule with MonthlyRepeatDOW BackupScheduleType

This section provides you information on the elements unique to the backup schedule with MonthlyRepeatDOW BackupScheduleType.

Table 13 BackupSchedule with MonthlyRepeatDOW BackupScheduleType

Element	Type	Description
WeekOfMonth	Integer (signed)	A single entry indicating the day to try a backup each month (1 to 28, -1 where 1=first day of month, -1=last day of month, etc.)
StartTime	String (ISO 8601 time format)	Start time. This start time applies to every chosen day-of-week in the list. The NativeTimezone element specifies the time zone and is assumed, so time zone should not be specified in this element.
EndTime	String (ISO 8601 time format)	End time. This end time applies to every chosen day-of-week in the list. Time zone should not be specified in this element.
DayofWeek	Integer	Indicates the day of week to attempt a backup (1-7 where 1=Monday)

CHAPTER 4

Backup Retention

This section includes the following topics:

Backup Retention

A backup retention represents a definition of an elapsed time period after which a backup will automatically deleted, or a fixed calendar date on which a backup will be deleted. When a backup is deleted, the formerly occupied storage space becomes available for new backups.

Add a backup retention to a backup service

Operation
POST /api/admin/extension/EmcBackupService/backupRetentions

Description
Create a backup retention that can be referenced cloud-wide.

Input parameters
Consume media type(s):
backupRetentionParams+xml

Output type:
BackupRetentionParamsType

Output parameters
Produce media type(s):
backupRetention+xml

Output type:
BackupRetentionType

Example request

```
POST /api/admin/extension/EmcBackupService/backupRetentions
Content-Type: backupRetentionParams+xml

<BackupRetentionParams>
    <BackupRetention name="Gold Retention">
        <Description>Pacific Gold service retention - 20 days</
Description>
        <AdaptiveRetentionEnabled>false</AdaptiveRetentionEnabled>
        <BackupRetentionType>Duration</BackupRetentionType>
        <Duration>P20D</Duration>
        <FirstYearlyRetentionDuration>P5Y</
FirstYearlyRetentionDuration>
        <FirstMonthlyRetentionDuration>P3M</
FirstMonthlyRetentionDuration>
        <FirstWeeklyRetentionDuration>P9W</
FirstWeeklyRetentionDuration>
        <FirstDailyRetentionDuration>P60D</
FirstDailyRetentionDuration>
    </BackupRetention>
</BackupRetentionParams>
```

Example response

```
201 Created
Content-Type: backupRetention+xml

<BackupRetention
    name="Gold Retention"
    type="backupRetention+xml"
    revision=”1.0000”
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRetention/56">
```

```
    <Description>Pacific Gold service retention - 20 days</
Description>
    <AdaptiveRetentionEnabled>false</AdaptiveRetentionEnabled>
    <BackupRetentionType>Duration</BackupRetentionType>
    <Duration>P20D</Duration>
    <FirstYearlyRetentionDuration>P5Y</FirstYearlyRetentionDuration>
    <FirstMonthlyRetentionDuration>P3M</FirstMonthlyRetentionDuration>
    <FirstWeeklyRetentionDuration>P9W</FirstWeeklyRetentionDuration>
    <FirstDailyRetentionDuration>P60D</FirstDailyRetentionDuration>
</BackupRetention>
```

Update backup retention

Operation
PUT /api/admin/extension/EmcBackupService/backupRetention/{id}

Description
Update a backup retention. The revision attribute is mandatory. Other elements are optional if they are not changed. If the revision attribute passed in the input parameters does not match the current state of the backup retention, the operation fails (response = 409 Conflict). The revision attribute in the backup retention is automatically incremented and returned in the output parameters after a successful update.

Input parameters
Consume media type(s):
vmwbackupRetention+xml

Input type:
BackupPolicyRetentionType

Output parameters
Produce media type(s):
vmwbackupRetention+xml

Output type:
BackupPolicyRetentionType

Example request

```
PUT /api/admin/extension/EmcBackupService/backupRetention/55
Content-Type: backupRetention+xml

<BackupRetention
    name="Gold Retention"
    type="backupRetention+xml"
    revision=”1.0000”
    id=”55”
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRetention/55">
    <Description>Pacific Gold service retention - 21 days</
Description>
    <AdaptiveRetentionEnabled>false</AdaptiveRetentionEnabled>
    <BackupRetentionType>Duration</BackupRetentionType>
    <Duration>P21D</Duration>
    <FirstYearlyRetentionDuration>P5Y</FirstYearlyRetentionDuration>
    <FirstMonthlyRetentionDuration>P3M</FirstMonthlyRetentionDuration>
    <FirstWeeklyRetentionDuration>P9W</FirstWeeklyRetentionDuration>
    <FirstDailyRetentionDuration>P60D</FirstDailyRetentionDuration>
</BackupRetention>
```

Example response

```
200 OK
Content-Type: backupRetention+xml
```

```
<BackupRetention
    name="Gold Retention"
    type="backupRetention+xml"
    revision=”1.0001”
    id=”55”
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRetention/55">
    <Description>Pacific Gold service retention - 21 days</
Description>
    <AdaptiveRetentionEnabled>false</AdaptiveRetentionEnabled>
    <BackupRetentionType>Duration</BackupRetentionType>
    <Duration>P21D</Duration>
    <FirstYearlyRetentionDuration>P5Y</FirstYearlyRetentionDuration>
    <FirstMonthlyRetentionDuration>P3M</FirstMonthlyRetentionDuration>
    <FirstWeeklyRetentionDuration>P9W</FirstWeeklyRetentionDuration>
    <FirstDailyRetentionDuration>P60D</FirstDailyRetentionDuration>
</BackupRetention>
```

Get a backup retention associated with a backup service

Operation
GET /api/admin/extension/EmcBackupService/backupRetention/{id}

Description
Get a backup retention associated with a backup service.

Input parameters
None

Output parameters
Produce media type(s):
backupRetention+xml

Output type:
BackupRetentionType

Example request

```
GET /api/admin/extension/EmcBackupService/backupRetention/55
```

Example response

```
200 OK
Content-Type: backupRetention+xml

<BackupRetention
    name="Gold Retention"
    type="backupRetention+xml"
    revision=”1.0001”
    id=”55”
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRetention/55">
    <Description>Pacific Gold service retention - 21 days</
Description>
    <AdaptiveRetentionEnabled>false</AdaptiveRetentionEnabled>
    <BackupRetentionType>Duration</BackupRetentionType>
    <Duration>P21D</Duration>
    <FirstYearlyRetentionDuration>P5Y</FirstYearlyRetentionDuration>
    <FirstMonthlyRetentionDuration>P3M</FirstMonthlyRetentionDuration>
    <FirstWeeklyRetentionDuration>P9W</FirstWeeklyRetentionDuration>
    <FirstDailyRetentionDuration>P60D</FirstDailyRetentionDuration>
</BackupRetention>
```

Delete a backup retention associated with a backup service

Operation
DELETE /api/admin/extension/EmcBackupService/backupRetention/{id}

Description
Delete a backup retention that is associated with a backup service. If the backup retention is referenced by a backup policy template, the delete operation fails (response = 409 Conflict).

Input parameters
None

Output parameters
None

Example request

```
DELETE /api/admin/extension/EmcBackupService/backupRetention/55
```

Example response

```
204 No Content
```

Get list of backup retentions associated with a backup service

Operation
GET /api/admin/extension/EmcBackupService/backupRetentions

Description
Retrieve backup retentions that are associated with a backup service.

Input parameters
None

Output parameters
BackupRetentionRefListType

Example request

```
GET /api/admin/extension/EmcBackupService/backupRetentions
```

Example response

```
200 OK
Content-Type: backupRetentionRefListType+xml

<BackupRetentionRefList href="https://vcloud.example.com/api/admin/
extension/EmcBackupService/backupRetentions">
    <BackupRetentionRef
        id="243"
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRetention/243"
        name="Bronze Retention - 10 days"/>
    <BackupRetentionRef
        id="119"
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRetention/119"
        name="Silver Retention - 14 months"/>
    <BackupRetentionRef
        id="963"
```

```
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRetention/963"
        name="Gold Retention - 3 years"/>
</BackupRetentionRefList>
```

BackupRetentionTypes

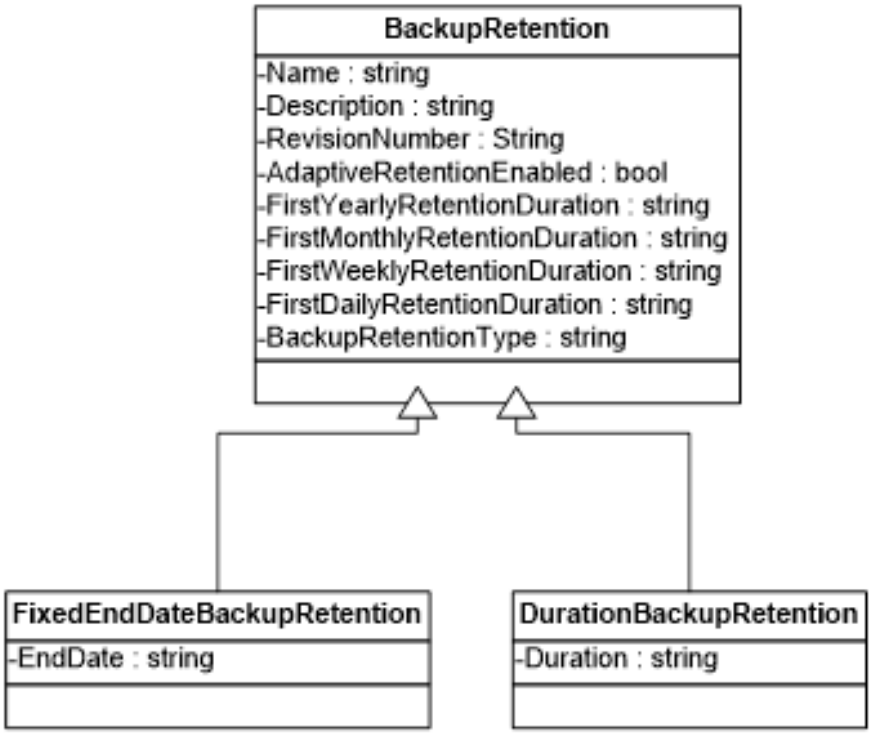
Table 14 BackupRetentionTypes

Element	Description
FixedEndDate	Delete all backups on or after this fixed calendar date
Duration	Delete a backup after this much time has elapsed since day the backup was initiated
NoExpiration	Backups are not deleted automatically

BackupRetention Object Taxonomy

This section outlines the BackupRetention object taxonomy.

Figure 9 BackupRetention Object Taxonomy



Common BackupRetention elements

Table 15 Common BackupRetention elements

Element	String	Description
AdaptiveRetentionEnabled	Bool	If AdaptiveRetentionEnabled is set to true (the most commonly used setting is expected to be false), the retention of certain automatically selected scheduled backups is over-ridden. Ad-hoc backups are not affected by this setting. Selection criteria for over-ride, the first scheduled backup of any year, month, week, and day. This determination is based on the NativeTimezone of the BackupSchedule which is over-ridden with a fixed, configurable duration based retention. If a backup would be selected under multiple criteria, the over-ride that is associated with the longer period is applied. For example, a backup is first of year, and first of month, and first of day so the FirstYearlyRetentionDuration is applied to the backup.
FirstYearlyRetentionDuration	String (ISO 8610 format duration)	Significant only if AdaptiveRetentionEnabled is true
FirstMonthlyRetentionDuration	String (ISO 8610 format duration)	Significant only if AdaptiveRetentionEnabled is true
FirstWeeklyRetentionDuration	String (ISO 8610 format duration)	Significant only if AdaptiveRetentionEnabled is true
FirstDailyRetentionDuration	String (ISO 8610 format duration)	Significant only if AdaptiveRetentionEnabled is true

Elements unique to BackupRetention with FixedEndDate BackupRetentionType

Table 16 Elements unique to BackupRetention with FixedEndDate BackupRetentionType

Element	Type	Description
EndDate	String (ISO 8601 time format)	Date with no time. 12 AM in NativeTimezone of BackupSchedule is presumed. Do not specify a time zone in this element. All backups will be deleted on or after this date.

Elements unique to BackupRetention with Duration BackupRetentionType

Table 17 Elements unique to BackupRetention with Duration BackupRetentionTypescription

Element	Type	Description
Duration	String (ISO 8601 duration)	Elapsed day count, which is measured from 12 AM on the day the backup commenced in the native time zone of the backup appliance. A backup will be deleted after this elapsed period.

CHAPTER 5

Backup OptionSet

A backup option set represents a collection of options to be invoked during the backup process.

Add a backup retention to a backup service

Operation
POST /api/admin/extension/EmcBackupService/backupRetentions

Description
Create a backup retention that can be referenced cloud-wide.

Input parameters
Consume media type(s):
backupRetentionParams+xml

Input type:
BackupRetentionParamsType

Output parameters
Produce media type(s):
backupRetention+xml

Output type:
BackupRetentionType

Example request

```
POST /api/admin/extension/EmcBackupService/backupRetentions
Content-Type: backupRetentionParams+xml

<BackupRetentionParams>
    <BackupRetention name="Gold Retention">
        <Description>Pacific Gold service retention - 20 days</
Description>
        <AdaptiveRetentionEnabled>false</AdaptiveRetentionEnabled>
        <BackupRetentionType>Duration</BackupRetentionType>
        <Duration>P20D</Duration>
        <FirstYearlyRetentionDuration>P5Y</
FirstYearlyRetentionDuration>
        <FirstMonthlyRetentionDuration>P3M</
FirstMonthlyRetentionDuration>
        <FirstWeeklyRetentionDuration>P9W</
FirstWeeklyRetentionDuration>
        <FirstDailyRetentionDuration>P60D</
FirstDailyRetentionDuration>
    </BackupRetention>
</BackupRetentionParams>
```

Example response

```
201 Created
Content-Type: backupRetention+xml

<BackupRetention
    name="Gold Retention"
    type="backupRetention+xml"
    revision=”1.0000”
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRetention/56">
    <Description>Pacific Gold service retention - 20 days</
Description>
    <AdaptiveRetentionEnabled>false</AdaptiveRetentionEnabled>
    <BackupRetentionType>Duration</BackupRetentionType>
    <Duration>P20D</Duration>
    <FirstYearlyRetentionDuration>P5Y</FirstYearlyRetentionDuration>
    <FirstMonthlyRetentionDuration>P3M</FirstMonthlyRetentionDuration>
    <FirstWeeklyRetentionDuration>P9W</FirstWeeklyRetentionDuration>
    <FirstDailyRetentionDuration>P60D</FirstDailyRetentionDuration>
</BackupRetention>
```

Update a backup option set

Operation
PUT /api/admin/extension/EmcBackupService/backupOptionSet/{id}

Description
Update a backup option set. The revision attribute is mandatory. Other elements are optional if they are not changed. If the revision attribute that is passed in the input parameters does not match the current state of the backup option set, the operation fails (response = 409 Conflict). The revision attribute in the backup option set is automatically incremented and returned in the output parameters after a successful update.

Input parameters
Consume media type(s):
vmwbackupOptionSet+xml

Input type:
BackupPolicyOptionSetType

Output parameters
Produce media type(s):
vmwbackupOptionSet+xml

Output type:
BackupPolicyOptionSetType

Example request

```
PUT /api/admin/extension/EmcBackupService/backupOptionSet/55
Content-Type: backupOptionSet+xml

<BackupOptionSet
    name="OptionSet Gold"
    type="backupOptionSet+xml"
    revision=”1”
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupOptionSet/55">
    <Description>New Gold service options</Description>
    <vAppBackupOptionFlags>"debug=true"</vAppBackupOptionFlags>
    <VmBackupOptionFlags>"debug=true"</VmBackupOptionFlags>
</BackupOptionSet>
```

Example response

```
200 OK
Content-Type: backupOptionSet+xml

<BackupOptionSet
    id="55"
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupOptionSet/55"
    name="OptionSet Gold"
    revision="2">
    <Description>New Gold service options</Description>
    <vAppBackupOptionFlags>"debug=true"</vAppBackupOptionFlags>
    <VmBackupOptionFlags>"debug=true"</VmBackupOptionFlags>
</BackupOptionSet>
```

Get a backup option set associated with a backup service

Operation
GET /api/admin/extension/EmcBackupService/backupOptionSet/{id}

Description
Get a backup option set associated with a backup service.

Input parameters
BackupOptionSetType

Output parameters
Produce media type(s):
backupOptionSet+xml

Output type:
BackupOptionSetType

Example request

```
GET /api/admin/extension/EmcBackupService/backupOptionSet/55
```

Example response

```
200 OK
Content-Type: backupOptionSet+xml

<BackupOptionSet
    id="55"
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupOptionSet/55"
    name="OptionSet Gold"
    revision="2">
    <Description>New Gold service options</Description>
    <vAppBackupOptionFlags>"debug=true"</vAppBackupOptionFlags>
    <VmBackupOptionFlags>"debug=true"</VmBackupOptionFlags>
</BackupOptionSet>
```

Delete a backup option set associated with a backup service

Operation
DELETE /api/admin/extension/EmcBackupService/backupOptionSet/{id}

Description
Delete a backup option set associated with a backup service. If the backup option set is referenced by a backup policy template, the delete operation fails (response = 409 Conflict).

Input parameters
None

Output parameters
None

Example request

```
DELETE /api/admin/extension/EmcBackupService/backupOptionSet/55
```

Example response

```
204 No Content
```

Update a backup option set

Operation
PUT /api/admin/extension/EmcBackupService/backupOptionSet/{id}

Description
Update a backup option set. The revision attribute is mandatory. Other elements are optional if they are not changed. If the revision attribute that is passed in the input parameters does not match the current state of the backup option set, the operation fails (response = 409 Conflict). The revision attribute in the backup option set is automatically incremented and returned in the output parameters after a successful update.

Input parameters
Consume media type(s):
vmwbackupOptionSet+xml

Input type:
BackupPolicyOptionSetType

Output parameters
Produce media type(s):
vmwbackupOptionSet+xml

Output type:
BackupPolicyOptionSetType

Example request

```
Content-Type: backupOptionSet+xml

<BackupOptionSet
    name="OptionSet Gold"
    type="backupOptionSet+xml"
    revision=”1”
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupOptionSet/55">
    <Description>New Gold service options</Description>
    <vAppBackupOptionFlags>"debug=true"</vAppBackupOptionFlags>
    <VmBackupOptionFlags>"debug=true"</VmBackupOptionFlags>
</BackupOptionSet>
```

Example response

```
200 OK
Content-Type: backupOptionSet+xml

<BackupOptionSet
    id="55"
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupOptionSet/55"
    name="OptionSet Gold"
    revision="2">
    <Description>New Gold service options</Description>
    <vAppBackupOptionFlags>"debug=true"</vAppBackupOptionFlags>
    <VmBackupOptionFlags>"debug=true"</VmBackupOptionFlags>
</BackupOptionSet>
```

BackupOptionSet elements

Table 18 BackupOptionSet elements

Element	Type	Description
vAppBackupOptionFlags	String	Options passed to vApp plugin, normally empty
VmBackupOptionFlags	String	Options passed to VM image plugin, normally empty

CHAPTER 6

Backup Policy Template Catalog

This section includes the following topics:

Backup Policy Template Catalog

A backup policy template catalog represents a named collection of BackupPolicyTemplates. This is intended to allow a provider to assign a group of BackupPolicyTemplates to an Org vDC. For example, a provider might wish to create three BackupPolicyTemplateCatalogs named "gold", "silver" and "bronze". Each would catalog contains a collection of BackupPolicyTemplates. The "gold" catalog might have more frequent backups and with longer retention and would be associated with higher cost service. The "silver" and "bronze" would have lower cost service levels.

The provider would "publish" the content of complete or partial BackupPolicyTemplateCatalogs to each Org vDC. This "publication" of policy(ies) would be in the form of a cloned copy of the content of the BackupPolicyTemplate to a newly created BackupPolicy.

A BackupPolicy is exposed inside a single Org vDC, but is not visible across Org vDC boundaries. A BackupPolicy can be edited to meet the needs of the vApps within its parent Org vDC, without affecting any vApps in other Org vDCs that may have originally derived a policy from the same source.

Add a backup policy template catalog to a backup service

Operation
POST /api/admin/extension/EmcBackupService/backupPolicyTemplateCatalogs

Description
Create a backup policy template catalog that can be referenced cloud-wide.

Input parameters
Consume media type(s):
backupPolicyTemplateCatalogParams+xml

Output type:
BackupPolicyTemplateCatalogParamsType

Output parameters
Produce media type(s):
backupPolicyTemplateCatalog+xml

Output type:
BackupPolicyTemplateCatalogType

Example request

```
POST /api/admin/extension/EmcBackupService/
backupPolicyTemplateCatalogs
Content-Type: backupPolicyTemplateCatalog+xml

<BackupPolicyTemplateCatalogParams>
    <BackupPolicyTemplateCatalog name="Gold level production backup
policy catalog ">
        <Description>Pacific timezone Gold service production
catalog</Description>
    </BackupPolicyTemplateCatalog>
</BackupPolicyTemplateCatalogParams>
```

Example response

```
201 Created
Content-Type: backupPolicyTemplateCatalog+xml
```

```
<BackupPolicyTemplateCatalog
    id="970"
    name="Gold level production backup policy catalog"
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupPolicyTemplateCatalog/58">
    revision="1">
    <Description>Pacific timezone Gold service production catalog</
Description>
    <Link
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupPolicyTemplateCatalogs"
        type="application/vnd.emc.vcp.backupPolicyTemplateCatalog
+xml"
        rel="up"/>
    <Link
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupPolicyTemplateCatalog/970/
backupPolicyTemplates"
        type="application/vnd.emc.vcp.backupPolicyTemplate+xml"
        rel="down"/>
</BackupPolicyTemplateCatalog>
```

Resources available on a BackupPolicyTemplate Catalog

Operation
GET /api/admin/extension/backupPolicyTemplateCatalog/{id}

Description
Retrieve the representation of a backup policy template catalog.

Input parameters
None

Output parameters
Produce media type(s):
backupPolicyTemplateCatalog+xml

Output type:
BackupPolicyTemplateCatalogType

Example request

```
GET /api/admin/extension/EmcBackupService/backupPolicyTemplateCatalog/
58"
```

Example response

```
Content-Type: backupPolicyTemplateCatalogParams+xml

<BackupPolicyTemplateCatalog
    id="58"
    name="Gold level production backup policy catalog"
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupPolicyTemplateCatalog/58">
    type="backupPolicyTemplateCatalog+xml"
    revision="1">
    <Description>Pacific timezone Gold service production catalog</
Description>
    <Link href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupPolicyTemplateCatalogs"
    type="application/vnd.emc.vcp.backupPolicyTemplateCatalog+xml"
    rel="up"/>
    <Link href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupPolicyTemplateCatalog/58/
backupPolicyTemplates"
    type="application/vnd.emc.vcp.backupPolicyTemplate+xml"
```

```
    rel="down"/>
</BackupPolicyTemplateCatalog>
```

Update a backup policy template catalog

Operation
PUT /api/admin/extension/EmcBackupService/backupPolicyTemplateCatalog/{id}

Description
Update a backup policy template catalog.

Input parameters
BackupPolicyTemplateCatalogType

Example request

```
PUT /api/admin/extension/EmcBackupService/
backupPolicyTemplateCatalog/55
Content-Type: backupPolicyTemplateCatalog+xml

<BackupPolicyTemplateCatalog id="11" href="https://
vcloud.example.com/api/admin/extension/EmcBackupService/
backupPolicyTemplateCatalog/11" name="Gold Catalog"
type="backupPolicyTemplateCatalog+xml" revision="1">
    <Description>Gold Catalog</Description>
</BackupPolicyTemplateCatalog>
```

Example response

```
200 OK
Content-Type: backupPolicyTemplateCatalog+xml

<BackupPolicyTemplateCatalog id="11" href="https://
vcloud.example.com/api/admin/extension/EmcBackupService/
backupPolicyTemplateCatalog/11" name="Gold Catalog"
type="backupPolicyTemplateCatalog+xml" revision="2">
    <Description>Gold Catalog</Description>
    <Link href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupPolicyTemplateCatalogs" type="application/
vnd.emc.vcp.backupPolicyTemplateCatalog+xml" rel="up"/>
    <Link href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupPolicyTemplateCatalog/11/
backupPolicyTemplates" type="application/
vnd.emc.vcp.backupPolicyTemplate+xml" rel="down"/>
</BackupPolicyTemplateCatalog>
```

Delete a backup policy template catalog

Operation
DELETE /api/admin/extension/EmcBackupService/backupPolicyTemplateCatalog/{id}

Description
Delete a backup policy template catalog.

Input parameters
None

Output parameters
Produce media type(s):
None

Output type:
None

Example request

```
DELETE /api/admin/extension/EmcBackupService/
backupPolicyTemplateCatalog/54
```

Example response

```
204 No Content
```

Get backup policy template catalogs

Operation
GET /api/admin/extension/EmcBackupService/backupPolicyTemplateCatalogs

Description
Get all backup policy template catalogs.

Input parameters
None

Output parameters
Produce media type(s):
backupPolicyTemplateCatalogRefList+xml

Output type:
BackupPolicyTemplateCatalogRefList

Example request

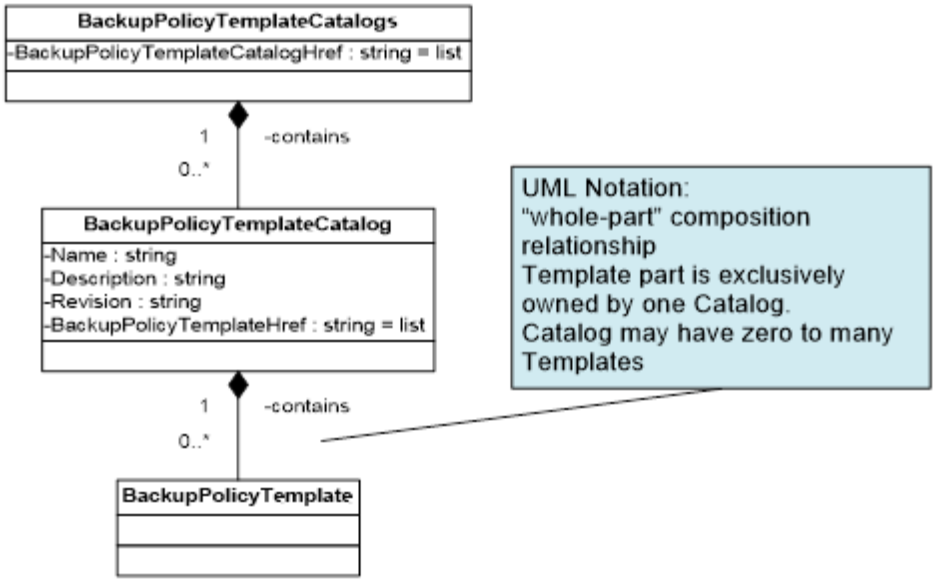
```
GET /api/admin/extension/EmcBackupService/backupPolicyTemplateCatalogs
```

Example response

```
200 OK
Content-Type: backupPolicyTemplateCatalogRefList+xml


<BackupPolicyTemplateCatalogRefList href="https://
vcloud.example.com/api/admin/extension/EmcBackupService/
backupPolicyTemplateCatalogs">
    <BackupPolicyTemplateCatalogRef id="11" href="https://
vcloud.example.com/api/admin/extension/EmcBackupService/
backupPolicyTemplateCatalog/11" name="Gold level production backup
policy catalog "/>
    <BackupPolicyTemplateCatalogRef id="22" href="https://
vcloud.example.com/api/admin/extension/EmcBackupService/
backupPolicyTemplateCatalog/22" name="Silver level production backup
policy catalog"/>
    <BackupPolicyTemplateCatalogRef id="33" href="https://
vcloud.example.com/api/admin/extension/EmcBackupService/
backupPolicyTemplateCatalog/33" name="Bronze level production backup
policy catalog"/>
</BackupPolicyTemplateCatalogRefList>
```

BackupPolicyTemplateCatalog Object Taxonomy

Figure 10 BackupPolicyTemplateCatalog Object Taxonomy



CHAPTER 7

Backup Policy Template

This section includes the following topics:

Backup Policy Template

A backup policy template represents a reusable tuple of a schedule, a retention policy, and a backup option set. This is intended to allow publication of a standardized set of backup policies. For example, a BackupPolicyTemplate might be named "Gold Level production vApps". Another policy might be named "Silver level web production vApps" and would have less frequent scheduled backups and shorter retention of backups as a lower cost offering by the provider.

A backup policy template is always a member of exactly one backup policy template catalog.

Updating a backup policy template does not alter backup policies that were previously derived from the template. However, if propagation of a change to derivative policies is desired, a query operation is available to find the derivative policies. Any change can be applied to derived policies using REST API calls to update the content.

Create a backup policy template in a backup policy template catalog

Operation
POST /api/admin/extension/EmcBackupService/backupPolicyTemplateCatalog/{catalog uuid}/backupPolicyTemplates

Description
Create a new backup policy template that can be referenced cloud-wide.

Input parameters
Consume media type(s):
backupPolicyTemplateParams+xml

Input type:
BackupPolicyTemplateParamsType

Output parameters
Produce media type(s):
backupPolicyTemplate+xml

Output type:
BackupPolicyTemplateType

Example request

```
POST /api/admin/extension/EmcBackupService/
backupPolicyTemplateCatalog/58/backupPolicyTemplates
Content-Type: backupPolicyTemplateParams+xml

<BackupPolicyTemplateParams>
    <BackupPolicyTemplate name="Gold level production vApps ">
        <Description>Pacific time zone Gold service production vApps</
Description>
        <BackupScheduleRef
            href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupSchedule/55" />
        <BackupRetentionRef
            href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRetention/2" />
        <BackupOptionSetRef
            href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupOptionSet/56" />
```

```
    </BackupPolicyTemplate>
</BackupPolicyTemplateParams>
```

Example response

```
201 Created
Content-Type: backupPolicyTemplate+xml

<BackupPolicyTemplate
    id="d2f"
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupPolicyTemplate/d2f"
    name="Gold level production vApps "
    revision="1">
    <Description>Pacific timezone Gold service production vApps</
Description>
    <BackupScheduleRef
        id="5ee"
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupSchedule/55"/>
    <BackupRetentionRef
        id="6f1"
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRetention/2"/>
    <BackupOptionSetRef
        id="8a5"
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupOptionSet/56"/>
    <Link
       id="1a8"
       href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupPolicyTemplateCatalog/58"
       rel="up"/>
</BackupPolicyTemplate>
```

Update a backup policy template

Operation

POST /api/admin/extension/EmcBackupService/backupPolicyTemplateCatalog/{catalog uuid}/backupPolicyTemplates

Description

Update a backup policy template.

Input parameters

Consume media type(s):
backupPolicyTemplate+xml

Input type:
BackupPolicyTemplateType

Output parameters

Produce media type(s):
backupPolicyTemplate+xml

Output type:
BackupPolicyTemplateType

Example request

```
PUT /api/admin/extension/EmcBackupService/backupPolicyTemplate/19
Content-Type: backupPolicyTemplate+xml

<BackupPolicyTemplate
    name="Gold level production vApps "
    type="backupPolicyTemplate+xml"
    revision=”1.2345”
```

```
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupPolicyTemplate/19">
    <Description>Pacific time zone Gold service production vApps</
Description>
    <BackupScheduleRef
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupSchedule/55" />
    <BackupRetentionRef
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRetention/2" />
    <BackupOptionSetRef
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupOptionSet/56" />
    <vCloud:Link
        rel="up"
        type="backupPolicyTemplateCatalog+xml"
        href="https:// ... /EmcBackupService/
backupPolicyTemplateCatalogs/58" />
</BackupPolicyTemplate>
```

Example response

```
200 OK
Content-Type: backupPolicyTemplate+xml

<BackupPolicyTemplate
    name="Gold level production vApps "
    type="backupPolicyTemplate+xml"
    revision=”1.2346”
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupPolicyTemplate/19">
    <Description>Pacific time zone Gold service production vApps</
Description>
    <BackupScheduleRef
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupSchedule/55" />
    <BackupRetentionRef
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRetention/2" />
    <BackupOptionSetRef
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupOptionSet/56" />
    <vCloud:Link
        rel="up"
        type="backupPolicyTemplateCatalog+xml"
        href="https:// ... /EmcBackupService/
backupPolicyTemplateCatalogs/58" />
</BackupPolicyTemplate>
```

Create or modify an ad-hoc backup policy quota

Operation
PUT /api/admin/org/{org-id}/AdhocConfig

Description
Setup or update specific organization's adhoc backup configurations.

Input parameters
Consume media type(s):
AdhocConfig +xml

Input type:
AdhocConfigType

Output parameters
Produce media type(s):
AdhocConfig +xml

Output type:
AdhocConfigType

Example request

```
PUT api/admin/org/f68a6dd9-3383-46c0-a95a-f19822942108/AdhocConfig
Content-Type: AdhocConfig+xml
<AdhocConfig AdhocQuotaValue="80737418240"  AdhocRetentionDays="1" />
```

Example response

```
200 OK
Content-Type: AdhocConfig+xml
<AdhocConfig AdhocQuotaValue="80737418240" AdhocRetentionDays="1"/>
```

Create or modify a scheduled backup policy quota

Operation
POST /api/admin/extension/vdc/{{vdc-id}}/BackupPolicy/{{policy-id}}/quota

Description
Create or modify a scheduled backup policy quota, set the quota value and enforce the quota.

- If the QuotaEnforced option is set to true, scheduled backup that is stopped if the quota usage grows more than quota value. A warning is displayed in the tenant UI. You can choose to dismiss the warning message in the UI.
- If the QuotaEnforced option is set to false, scheduled backup will not be impacted. A warning message displays on the tenant UI, and you can choose to dismiss it in the UI.

Input parameters
Consume media type(s):
PolicyQuota+xml

Output type:
PolicyQuotaType

Output parameters
Produce media type(s):
PolicyQuota+xml

Output type:
PolicyQuota

Example request

```
POST api/admin/extension/vdc/1190bfe8-4b65-4fa7-a8a8-395c77e56b73/
BackupPolicy/c68250ed-ec35-4e44-8649-90704ae997a3/quota
Content-Type: PolicyQuota+xml
<PolicyQuota>
<QuotaValue>107374182400</QuotaValue>
<QuotaEnforced>true</QuotaEnforced>
</PolicyQuota>
```

Example response

```
200 OK
Content-Type: application/xml
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<PolicyQuota>     <Quota-Value>107374182400</QuotaValue>
<QuotaEnforced>true</QuotaEnforced> </PolicyQuota>
```

Dismiss a backup policy quota warning message

Operation
DELETE /api/admin/extension/vdc/{{vdc-id}}/BackupPolicy/{{policy-id}}/quota/warning

Description
Set to not display the quota warning for a particular policy if the quota usage is bigger than quota value.

Input parameters
Delete

Output parameters
None

Example request

```
DELETE api/admin/extension/vdc/1190bfe8-4b65-4fa7-a8a8-395c77e56b73/BackupPolicy/c68250ed-ec35-4e44-8649-90704ae997a3/quota/warning
```

Example response

```
200 OK
```

Delete a backup policy template

Operation
DELETE /api/admin/extension/EmcBackupService/backupPolicyTemplate/{id}

Description
Delete a backup policy template.

Input parameters
None

Output parameters
None

Example request

```
DELETE /api/admin/extension/EmcBackupService/backupPolicyTemplate/5e61538f-5aa1-4f43-8665-24a6a2f6337c
```

Example response

```
204 No content
```

Get list of backup policy templates in a backupPolicyTemplateCatalog

Operation
GET /api/admin/extension/EmcBackupService/ backupPolicyTemplateCatalog/{id}/backupPolicyTemplates

Description
Get list of backup policy templates.

Input parameters
None

Output parameters

Produce media type(s):
application/BackupPolicyTemplateRefList+xml

Output type:
BackupPolicyTemplateRefList

Example request

```
GET /api/admin/extension/EmcBackupService/
backupPolicyTemplateCatalog/58/backupPolicyTemplates"
```

Example response

```
200 OK
Content-Type: application/QueryResultRefList+xml

<BackupPolicyTemplateRefList>
    <BackupPolicyTemplateRef
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupPolicyTemplate/1"
        name="Gold level production vApps "
        type="backupPolicyTemplate+xml" />
    <BackupPolicyTemplateRef
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupPolicyTemplate/2"
        name="Silver level production vApps "
        type="backupPolicyTemplate+xml" />
    <BackupPolicyTemplateRef
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupPolicyTemplate/3"
        name="Bronze level production vApps "
        type="backupPolicyTemplate+xml" />
</BackupPolicyTemplateRefList>
```

Get list of backup policy templates in a backupPolicyTemplateCatalog, with optional filter

Operation

GET /api/admin/extension/EmcBackupService/ backupPolicyTemplateCatalog/{id}/ backupPolicyTemplates /query

Description

Get list of backup policy templates using a query handler with an optional filter.

Input parameters

None

Output parameters

Produce media type(s):
application/QueryResultRefList+xml

Output type:
QueryResultRefList

Example request

```
GET /api/admin/extension/EmcBackupService/
backupPolicyTemplateCatalog/58/backupPolicyTemplates/query?
BackupScheduleH-ref=”https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupSchedule/2"
```

Example response

The query example returns only those backup policy templates that incorporate the specified BackupSchedule by reference. The "?BackupScheduleHref=" filter suffix is optional. If the filter suffix was omitted, all backup policy templates would be returned. BackupRetentionHref and BackupOptionSetHref are also supported. All filter categories can be applied simultaneously if desired.

Query filter support is intended to allow determination of:

- Whether a backup policy element, such as a schedule, is in use at all.
- Where a backup policy element is referenced.
- What derived backup policy resources might have to be altered if "trickle down" parent/child inheritance of a change to a policy element is desired. Implementation of "trickle down" alteration require a subsequent query on the active backup repository in each Org vDC to identify any derived backup policies.

```
200 OK
Content-Type: application/QueryResultRefList+xml

<QueryResultRefList>
    <BackupPolicyTemplateRef
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupPolicyTemplate/1"
        name="Gold level production vApps "
        type="backupPolicyTemplate+xml" />
    <BackupPolicyTemplateRef
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupPolicyTemplate/2"
        name="Silver level production vApps "
        type="backupPolicyTemplate+xml" />
    <BackupPolicyTemplateRef
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupPolicyTemplate/3"
        name="Bronze level production vApps "
        type="backupPolicyTemplate+xml" />
</QueryResultRefList>
```

Query Pagination and Caching

All queries support pagination of results through the standard `page` and `pageSize` parameters. They also support index parameters `i` and `n`. The default `page` (`i`) is `0`. The default `pageSize` (`n`) is `10`.

Some queries always run quickly and return the requested results in a single call. Others exceed the standard timeout of the vCloud Director REST Extension API and cannot return the requested results in a single call. In this case, the query returns with the HTTP status code `202 Accepted`, and returns a QueryResultList that indicates an incomplete result.

Use the `href` in this result to poll the query results periodically and obtain the requested results. The results that are identified by the **`q={id}`** are cached in the background and kept for up to 1 day. When you run a new query, if there are results in the cache which are less than 3 minutes old, these cached results are used. Otherwise, a new query is created.

The `sync` parameter is provided to disable the cache. When you specify **`sync=true`**, the REST API waits for the query result. However, depending on the workload of the backup server, the request may exceed the standard timeout for the vCloud Director REST Extension API.

When the query results are available, they return with the content as described for each supported query, and with additional attributes as shown:

```
<QueryResultList id="2a795ad4-135b-4669-ac12-170c552b3aa8"
href=https://example.vcloud.com/api/admin/extension/EmcBackupService/
backupRepository/26/query?type=q&q=2a795ad4-135b-4669-
ac12-170c552b3aa8&i=0&n=10
when="2013-10-25T21:45:47Z"
total="12"
next=https://example.vcloud.com/api/admin/extension/EmcBackupService/
backupRepository/26/query?type=q&q=2a795ad4-135b-4669-
ac12-170c552b3aa8&i=10&n=10
final="https://example.vcloud.com/api/admin/extension/
EmcBackupService/backupRepository/26/query?
type=q&q=2a795ad4-135b-4669-ac12-170c552b3aa8&i=2&n=10">

...

</QueryResultList>
```

Table 19 Attributes in QueryResultList

Attribute	Description
`id`	Uniquely identifies the current result set. Cached results are currently scrubbed after 24 hours. Within that time, the cached results are constant so that paging within the set is consistent.
`total`	The total number of results that match this query. This attribute is only present when the BG query is complete. If missing, the query has not yet completed.
`when`	The time when the original query completed. Can be presented in the user interface as a tip to the age of the results.
`href`	A request against this `href` returns the current slice of the result set.
`first`	A request against this `href` returns the first slice of the result set (only present if the current slice is not the first).
`final`	A request against this `href` returns the final slice of the result set (only present if the current slice is not the final).
`back`	A request against this `href` returns the prior slice of the result set (only present if there is a prior slice).
`next`	A request against this `href` will return the next slice of the result set (only present if there is a next slice).

Get a backup policy template

Operation
GET /api/admin/extension/EmcBackupService/backupPolicyTemplate/{id}

Description
Get a backup policy template.

Input parameters
None

Output parameters
Produce media type(s):
backupPolicyTemplate+xml

Output type:
BackupPolicyTemplateType

Example request

```
GET /api/admin/extension/EmcBackupService/backupPolicyTemplate/11
```

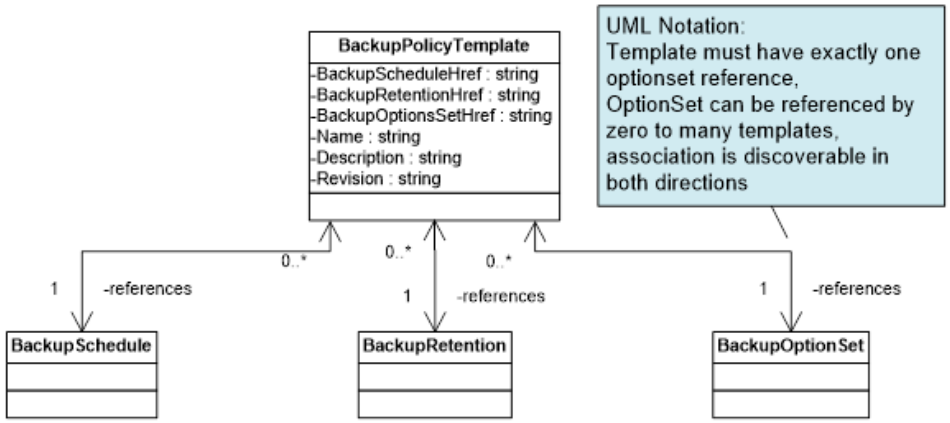
Example response

```
200 OK
Content-Type: backupPolicyTemplate+xml

<BackupPolicyTemplate id="11" href="https://vcloud.example.com/api/
admin/extension/EmcBackupService/backupPolicyTemplate/11" name="Gold
level vApps" type="backupPolicyTemplate+xml" revision="1">
    <Description>Pacific time zone Gold Service vApps</Description>
    <BackupScheduleRef id="22" href="https://vcloud.example.com/api/
admin/extension/EmcBackupService/backupSchedule/22"/>
    <BackupRetentionRef id="21" href="https://vcloud.example.com/api/
admin/extension/EmcBackupService/backupRetention/21"/>
    <BackupOptionSetRef id="c25236ed-2cf5-4f7d-96e0-781d0d276443"
href="https://vcloud.example.com/api/admin/extension/EmcBackupService/
backupOptionSet/23"/>
    <Link id="26" href="https://vcloud.example.com/api/admin/
extension/EmcBackupService/backupPolicyTemplateCatalog/26" rel="up"/>
</BackupPolicyTemplate>
```

BackupPolicyTemplate object taxonomy

This section provides the taxonomy for the BackupPolicyTemplate object.

Figure 11 BackupPolicyTemplate object taxonomy



CHAPTER 8

Backup Appliance

This section includes the following topics:

Backup Appliance

A backup appliance represents a physical entity that holds vApp backups. vApp backups are conducted as a series of one or more VM backups using the VMware VADP. Since the VM backup process requires an interface to the underlying vCenter hosting the VM, the backup appliances must be associated with a vCenter (several vCenters is also OK), and must hold vCenter credentials. If the backup appliance performs hotadd based VADP backups and restores, the backup appliance must be associated with proxy VMs in the vSphere environment. The proxy VMs have an affinity to specific vmfs datastores, based on the storage connectivity of the host running the proxy VM.

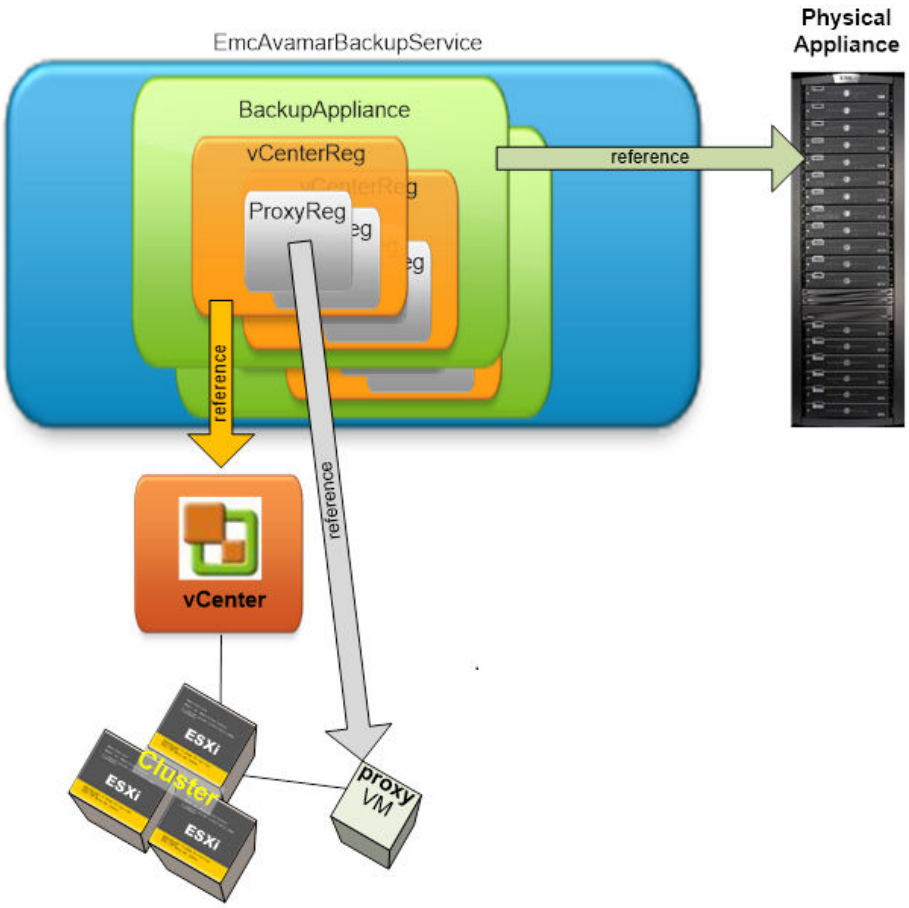
A backup appliance is considered to be a resource of a backup service. A backup service can use more than one backup appliance.

A backup appliance provides two distinct functions: backups and restores. It is possible to have an attached backup appliance that provides one function but not the other.

A backup appliance supports the cloud concept of co-tenancy though sub-units called backup repositories. A backup repository represents a logical entity that holds backups that are associated with a single tenant Org vDC. A backup appliance hosts the storage for one, or many, backup repositories.

VADP = VMware vStorage API for Data Protection: http://kb.vmware.com/kb/1021175

Figure 12 Backup Appliance overview



Add a backup appliance to a backup service

Operation
POST /api/admin/extension/EmcBackupService/backupAppliances

Description
Register a backup appliance. This operation returns a vCloud Director task, and the ultimate staus of the task's success is contigent on validation of the supplied backup appliance.

Input parameters
Consume media type(s):
RegisterBackupApplianceParams +xml

Input type:
RegisterBackupApplianceParams

Output parameters
Produce media type(s):
task+xml

Output type:
TaskType

Example request

```
POST /api/admin/extension/EmcBackupService/backupAppliances
Content-Type: RegisterBackupApplianceParams+xml

<RegisterBackupApplianceParams>
    <BackupAppliance name="Avamar-Backup-Appliance-19">
        <Description/>
        <IsEnabled>false</IsEnabled>
        <Username>administrator</Username>
        <Password>secretPw123</Password>
        <Url>https://10.115.124.37:443</Url>
    </BackupAppliance>
</RegisterBackupApplianceParams>
```

Example response

```
202 Accepted
Content-Type: task+xml

<Task status="running">
    <Owner
        type="backupAppliance+xml"
        name="Internet"
        href="urn:vcloud:backupAppliance:54" />
</Task>
```

Get list of registered backup appliances

Operation
GET /api/admin/extension/EmcBackupService/backupAppliances

Description
Retrieve a list of references to backup appliances attached to a backup service.

Input parameters
None

Output parameters
BackupApplianceReferencesType= a list of BackupApplianceReference: (Name, href, type)

Example request

```
GET /api/admin/extension/EmcBackupService/backupAppliances
```

Example response

```
200 OK
Content-Type: backupApplianceReferences+xml

<BackupApplianceReferences>
    <vmext:BackupApplianceReference
        name="Avamar ADS 54"
        type="backupappliance+xml"
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupAppliance/54" />
</BackupApplianceReferences>
```

Resources available on a Backup Appliance

Operation
GET /api/admin/extension/EmcBackupService/backupAppliance/{id}

Description
Retrieve the representation of a registered backup appliance.

Input parameters
None

Output parameters
Produce media type(s):
backupAppliance +xml

Output type:
BackupApplianceType

Example request

```
GET /api/admin/extension/EmcBackupService/backupAppliance/54
```

Example response

```
200 OK
Content-Type: backupAppliance+xml

<BackupAppliance
    name="Avamar-54"
    id="urn:vcloud:backupapliance:54"
    type="backupAppliance+xml"
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupAppliance/54">
    <vCloud:Link
        rel="down"
        type="vcenterRegistrations+xml"
        href="https:// ... /EmcBackupService/backupAppliance/54/
vcenterRegistrations" />
    <Description/>
    <IsEnabled>false</IsEnabled>
    <Username>administrator</Username>
    <Url>https://10.115.124.37:443</Url>
    <AvamarServerVersion>1.2.3</AvamarServerVersion>
    <BackupGatewayVersion>3.4.5</BackupGatewayVersion>
    <BackupStores>
        <BackupStore>
            <backupStoreName>dpn04.asl.lab.emc.com</backupStoreName>
            <backupStoreID>DPN:1263491608@00:11:43:E7:A2:98</
backupStoreID>
            <backupStoreType virtual="yes">Avamar - GSAN</
backupStoreType>
            <totalCapacityGB>8192</totalCapacityGB>
            <usedCapacityPercent>50</usedCapacityPercent>
        </BackupStore>
        ...
    </BackupStores>
</BackupAppliance>
```

Update a Backup Appliance

Operation
PUT /api/admin/extension/EmcBackupService/backupAppliance/{id}

Description
Update the representation of a registered backup appliance. This operation does not validate the supplied settings for the backup appliance. This design aspect is intentional, to allow the option of recording an account credential change, before the corresponding change is made in the backup appliance.

Input parameters

Consume media type(s):
backupAppliance +xml

Input type:
BackupApplianceType

Output parameters

Produce media type(s):
backupAppliance +xml

Output type:
BackupApplianceType

Example request

```
PUT /api/admin/extension/EmcBackupService/backupAppliance/54

Content-Type: backupAppliance+xml

<BackupAppliance
    name="Avamar-54"
    id="urn:vcloud:backupapliance:54"
        ...
    revision=”1”>
    <Description/>
    <IsEnabled>true</IsEnabled>
    <Username>administrator</Username>
    <Url>https://10.115.124.37:443</Url>
        ...
</BackupAppliance>
```

Example response

```
200 OK
Content-Type: backupAppliance+xml

<BackupAppliance
    name="Avamar-54"
    id="urn:vcloud:backupapliance:54"
    type="backupAppliance+xml"
    href=https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupAppliance/54
    revision=”2”>
    <vCloud:Link
        rel="down"
        type="vcenterRegistrations+xml"
        href="https:// ... /EmcBackupService/backupAppliance/54/
vcenterRegistrations" />
    <Description/>
    <IsEnabled>true</IsEnabled>
    <Username>administrator</Username>
    <Url>https://10.115.124.37:443</Url>
    <AvamarServerVersion>1.2.3</AvamarServerVersion>
    <BackupGatewayVersion>3.4.5</BackupGatewayVersion>
    <BackupStores>
        <BackupStore>
            <backupStoreName>dpn04.asl.lab.emc.com</backupStoreName>
            <backupStoreID>DPN:126349160800:11:43:E7:A2:98</
backupStoreID>
            <backupStoreType virtual="yes">Avamar - GSAN</
backupStoreType>
            <totalCapacityGB>8192</totalCapacityGB>
            <usedCapacityPercent>50</usedCapacityPercent>
        </BackupStore>
        ...
    </BackupStores>
</BackupAppliance>
```

Delete a backup appliance

Operation
DELETE /api/admin/extension/EmcBackupService/backupAppliance/{id}

Description
Delete a backup appliance. The backup appliance must not be in use - no virtual centers or proxies can be registered under the backup appliance. This operation is asynchronous and returns a task that you can monitor to track the progress of the request.

Input parameters
None

Output parameters
Produce media type(s):
application/vnd.vmware.vcloud.task+xml

Output type:
TaskType

Example request

```
DELETE /api/admin/extension/EmcBackupService/backupAppliance/54
```

Example response

```
202 Accepted
Content-Type: application/vnd.vmware.vcloud.task+xml

<Task
    status="running"
    operation="Deleting backup appliance Avamar-54 (54)">
    <Owner
        name="Internet"
        type="backupAppliance+xml"
        href="urn:vcloud:backupAppliance:54 " />
</Task>
```

BackupAppliance elements

Table 20 BackupAppliance elements

Element	Type	Description
`Name`	String	User-configurable
`Description`	String	User-configurable
`AvamarServerVersion`	String	Read-only indication of the backup appliance version
`BackupGatewayVersion`	String	Read-only indication of the backup gateway software version
`IsEnabled`	Bool	Must be `true` to conduct backups and restores with the backup appliance. Set to `false` to disable the backi[appliance for maintenance activity.
`UserName`	String	Appliance account used by the vCD DPE service

Table 20 BackupAppliance elements (continued)

Element	Type	Description
Password	String	Password associated with the appliance account, write-only
Address	String	Network address of the backup gateway

vCenter Registration

This section includes the following topics.

vCenterRegistration elements

Table 21 vCenterRegistration elements

Element	Type	Description
vCenterHref	String	Reference to an existing vCenter in vCloud Director
UserName	String	Appliance account that is used by the vCD DPE service
Password	String	Password associated with the appliance account, write-only
EnableSslCertEnforcement	Bool	
Revision	String	

Add a vCenter registration to a Backup Appliance

Operation
POST /api/admin/extension/EmcBackupService/backupAppliance/{id}/vCenterRegistrations

Description
A vCenter Registration under a Backup Appliance represents a registration of a vCenter account associate with the backup appliance. To perform VM backup activity, using the VADP API, a backup appliance needs vCenter identification and credentials. The vCenter account requires Administrative privileges.

Input parameters
Consume media type(s):
registerVCenterParams+xml

Input type:
RegistrationVCenterParamsType

Output parameters
Produce media type(s):
vCenterRegistration+xml

Output type:

VCenterRegistrationType

Example request

```
POST /api/admin/extension/EmcBackupService/backupAppliance/54/
vCenterRegistrations
Content-Type: registerVCenterParams+xml

<RegisterVCenterParams>
    <VCenterReference>
        <Name>vCloud51-Resource1</Name>
        <vimServer href="https://vcloud.example.com/api/admin/
extension/vimServer/607" />
        <Username>administrator</Username>
        <Password>secretPw123</Password>
        <EnableSslCertEnforcement>true</EnableSslCertEnforcement>
    </VCenterReference>
</RegisterVCenterParams>
```

Example response

```
202 Accepted
Content-Type: vCenterRegistration+xml

<VCenterRegistration
    name="vCloud51-Resource1"
    type="vCenterRegistration+xml"
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/vCenterRegistration/1">
    <Link
        rel="up"
        type="backupAppliance+xml"
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupAppliance/54" />
    <Link
        rel="down"
        type="backupProxyRegistration+xml"
        href="https:// ... /EmcBackupService/vCenterRegistration/1/
backupProxyRegistrations" />
    <VimServer href="https://vcloud.example.com/api/admin/extension/
vimServer/607" />
    <Username>administrator</Username>
    <Password>*123*</Password>
    <EnableSslCertEnforcement>true</EnableSslCertEnforcement>
    <Tasks>
        <Task
            status="running"
            operation="Creating vCenter Registration (1)">
        </Task>
    </Tasks>
</VCenterRegistration >
```

Get list of registered vCenters on a backup appliance

Operation
GET /api/admin/ extension/EmcBackupService/backupAppliance/{id}/ vCenterRegistrations

Description
Retrieve a list of references to vCenters registered to a backup appliance.

Input parameters
None

Output parameters
Produce media type(s):
VCenterReferences+xml

Output type:
VCenterReferencesList

Example request

```
GET /api/admin/extension/EmcBackupService/backupAppliance/15/
vCenterRegistrations
```

Example response

```
200 OK
Content-Type: VCenterReferences+xml

<VCenterReferences>
    <VCenterReference name="" type="" href="" id="" />
    ...
```

Get a registered vCenter

Operation
GET /api/admin/extension/EmcBackupService/vCenterRegistration/{id}

Description
Get a registered vCenter.

Input parameters
None

Output parameters
Produce media type(s):
vCenterRegistration+xml

Output type:
VCenterRegistrationType

Example request

```
GET /api/admin/extension/EmcBackupService/vCenterRegistration/15
```

Example response

```
200 OK
Content-Type: vCenterRegistration+xml

<VCenterRegistration type="application/vnd.emc.vcp.vcenterRegistration
+xml" id="11" revision="3" name="resource-vcenter-1.brsvirtdev.com">
    <Link href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupAppliance/22" rel="down" type="backupAppliance
+xml"/>
    <EnableSslCertEnforcement>true</EnableSslCertEnforcement>
    <Username>root</Username>
    <VimServer name="resource-vcenter-1.brsvirtdev.com" id="33"
type="application/vnd.vmware.admin.vmwvirtualcenter+xml"
href="https://vcloud.example.com/api/admin/extension/vimServer/33"/>
</VCenterRegistration>
```

Update registered vCenter

Operation
PUT /api/admin/ extension/EmcBackupService/vCenterRegistration/{id}

Description
Update a vCenter registration.

Input parameters
Consume media type(s):

VCenterRegistration+xml

Input type:
vCenterRegistrationType

Output parameters
Produce media type(s):
vCenterRegistration+xml

Output type:
VCenterRegistrationType

Example request

```
PUT /api/admin/extension/EmcBackupService/vCenterRegistration/11
Content-Type: vcenterRegistration+xml

<VCenterRegistration type="application/vnd.emc.vcp.vcenterRegistration
+xml" id="11" revision="2" name="resource-vcenter-1.brsvirtdev.com">
    <EnableSslCertEnforcement>true</EnableSslCertEnforcement>
    <Username>root</Username>
    <Password>password123</Password>
    <VimServer name="resource-vcenter-1.brsvirtdev.com" id="11"
type="application/vnd.vmware.admin.vmwvirtualcenter+xml"
href="https://vcloud.example.com/api/admin/extension/vimServer/11"/>
</VCenterRegistration>
```

Example response

```
200 OK
Content-Type: vCenterRegistration+xml


<VCenterRegistration type="application/vnd.emc.vcp.vcenterRegistration
+xml" id="11" revision="3" name="resource-vcenter-1.brsvirtdev.com">
    <Link href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupAppliance/22" rel="down" type="backupAppliance
+xml"/>
    <EnableSslCertEnforcement>true</EnableSslCertEnforcement>
    <Username>root</Username>
    <VimServer name="resource-vcenter-1.brsvirtdev.com" id="33"
type="application/vnd.vmware.admin.vmwvirtualcenter+xml"
href="https://vcloud.example.com/api/admin/extension/vimServer/33"/>
</VCenterRegistration>
```

Delete a registered vCenter

Operation
DELETE /api/admin/extension/EmcBackupService/vCenterRegistration/{id}

Description
Delete a registered vCenter.

Input parameters
None

Output parameters
None

Example request

```
DELETE /api/admin/extension/EmcBackupService/vCenterRegistration/15
```

Example response

```
204 No Content
```

Get Proxy Registrations under vCenter Registration

A backup proxy is a VM that is an essential component of the VM backup process. Backup of a vCloud vApp requires backup of the VMs that compose the vApp. To conduct efficient VM backups in a vCloud environment, each storage datastore that backs a provider vDC should have a backup proxy that is deployed on a vSphere host or cluster that is connected to the storage via a storage network path. Generally, deploying a proxy on each vSphere cluster that backs a provider vDC meets this requirement.

In a large vCloud, multiple backup proxy VMs per cluster might be desirable to achieve larger numbers of concurrent backups to improve backup/restore throughput.

Operation
GET /api/admin/extension/EmcBackupService/vCenterRegistration/{id}/backupProxyRegistrations

Description
Get proxy registrations under a registered vCenter.

Input parameters
None

Output parameters
Produce media type(s):
proxyInformation+xml

Output type:
ProxyInformationType

Example request

```
GET /api/admin/extension/EmcBackupService/vCenterRegistrations/15/
backupProxyRegistrations
```

Example response

```
200 OK

Content-Type: ProxyInformationType

<ProxyInformation>
    <vCenters>
        <vCenter name="resource-vcenter-1.brsvirtdev.com">
            <ImageProxies>
                <ImageProxy name="vmproxy-1.brsvirtdev.com">
                    <Datastores>
                        <Datastore enabled="true" name="VNX55B_LUN1"/>
                        <Datastore enabled="true" name="Datastore 1"/>
                        <Datastore enabled="true"
name="NfsRepository"/>
                        <Datastore enabled="true" name="Datastore 2"/
>
                    </Datastores>

                </ImageProxy>
                <ImageProxy name="vmproxy-2.brsvirtdev.com">
                    <Datastores>
                        <Datastore enabled="true" name="Datastore 1"/>
                        <Datastore enabled="true" name="Datastore 2"/>
                        <Datastore enabled="true" name="Datastore 3"/>
                    </Datastores>

                </ImageProxy>

            </ImageProxies>
```

```
        </vCenter>

    </vCenters>
</ProxyInformation>
```

Backup appliance queries

A backup appliance has a hierarchical tree of accounts which retain backups. Various levels in this account hierarchy retain key/value metadata which is intended to allow browse or search of backup inventory in use cases where the vCloud Director is not available (such as at a replication target site) or where a vCloud entity has been deleted. A query facility is available to return lists of vCloud related accounts and backup inventory.

The query facility also returns lists of recent and current activity on the backup appliance.

The query facility also returns a summary of basic health and capacity of the backup appliance.

The query facility on the backup appliance is restricted to use by SYSTEM (provider). A limited subset of these queries is also available on a backup repository, and the reason this is duplicated on the repository is to allow access by Org admins.

Backup Appliance available query types

Table 22 Backup Appliance available query types

Query Type	REQ Filter	Optional Filters	Returns
vCloud		vcloudname	vClouds registered in backup appliance
Org	vcloudguid	orgname	Orgs that are registered in backup appliance
Vdc	vcloudguid+ orgguid	vdcname	vDCs associated with vApp accounts in backup appliance
Vapp	vcloudguid+ orgguid	vappname	vApp accounts in backup appliance
Backup	vcloudguid+ orgguid+ vappguid	backupdaterange	Backups for a specific vApp
Owner	vcloudguid+ orgguid	ownername	Most recent owner that is associated with a vApp account
Activity			Running and recent jobs in backup appliance
appliancestate			Backup appliance health and capacity status

Get a list of vCloud accounts in a backup appliance, with optional cloud name filter

Operation
GET /api/admin/extension/EmcBackupService/backupAppliance/{id}/query?type=vCloud

Description
Get list of all vCloud accounts held in the backup appliance. This is a read only list and is not bound to specific states. If filter is provided it will be applied to the corresponding result set.

Input parameters
None

Output parameters
Produce media type(s):
QueryResultList+xml

Output type:
QueryResultList

Example request

```
GET /api/admin/extension/EmcBackupService/backupAppliance/15/query?
type=vCloud
GET /api/admin/extension/EmcBackupService/backupAppliance/15/query?
type=vcloud&vcloudName=”MegaNap-Denver*”
```

Example response

```
200 OK
Content-Type: QueryResultList+xml

<QueryResultList>
    <VcloudRef
        guid="d5443f6b-85e"
        name=" MegaNap-Denver vCloud Primary" />
    <VcloudRef
        guid="3f79780c-6b0"
        name=" MegaNap-Denver vCloud DR Standby" />
</QueryResultList>
```

Get list of Org accounts within a backup appliance

Operation
GET /api/admin/extension/EmcBackupService/backupAppliance/{id}/query?type=org&vcloudguid={guid}

Description
Get list of Org accounts held in the backup appliance. List can be limited to a single Org with the optional filter. This is a read only list and is not bound to specific states. If filter is provided it will be applied to the corresponding result set.

Input parameters
None

Output parameters
Produce media type(s):
QueryResultList+xml

Output type:

QueryResultList

Example request

```
GET /api/admin/extension/EmcBackupService/backupAppliance/15/query?
type=org&vcloudguid=123
GET /api/admin/extension/EmcBackupService/backupAppliance/15/query? ↵
type=org,vcloudguid=123&orgName=”Dinoco”
```

Example response

```
200 OK
Content-Type: QueryResultList+xml

<QueryResultList
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupAppliance/15/query?type=org&vcloudguid=123">>
    <OrgRef
        guid="d54"
        name="Dinoco" />
    <OrgRef
        guid="3f7"
        name="Monsters Inc." />
</QueryResultList>
```

Get list of virtual datacenters (vDCs) in backup appliance

Operation
GET /api/admin/extension/EmcBackupService/backupAppliance/{id}/query?type=vdc&vcloudguid={guid}&orgguid={guid}

Description
Get list of all Org virtual datacenters associated with vApp accounts held in the backup appliance under a specific vCloud and Org in the backup appliance account system. This is a read only list and is not bound to specific states. If filter is provided it will be applied to the corresponding result set.

Input parameters
None

Output parameters
Produce media type(s):
QueryResultList+xml

Output type:
QueryResultList

Example request

```
GET /api/admin/extension/EmcBackupService/backupAppliance/15/query?
type=vdc&vcloudguid=123&orgguid=5f6
GET /api/admin/extension/EmcBackupService/backupAppliance/15/query?
type=vdc&vcloudguid=123&orgguid=5f6&vdcname=”Dinoco Accounting”
```

Example response

```
200 OK
Content-Type: QueryResultList+xml

<QueryResultList
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupAppliance/15/query?
type=vdc&vcloudguid=123&orgguid=5f6">
    <VdcRef
        guid="d54"
        name="Dinoco Production datacenter" />
    <VdcRef
        guid="3f7"
```

```
        name="Dinoco test datacenter" />
</QueryResultList>
```

Get list of vApps accounts in backup appliance

Operation

GET /api/admin/extension/EmcBackupService/backupAppliance/{id}/query?type=vapp&vcloudguid={guid}&orgguid={guid}

Description

Get list of all vApp accounts held in the backup appliance under a specific vCloud and Org in the backup appliance account system. This is a read only list and is not bound to specific states. If the filter is provided it is applied to the corresponding result set.

Input parameters

None

Output parameters

Produce media type(s):
QueryResultList+xml

Output type:
QueryResultList

Example request

```
GET /api/admin/extension/EmcBackupService/backupAppliance/15/query?
type=vapp&vcloudguid=3f7&orgguid=5f6
GET /api/admin/extension/EmcBackupService/backupAppliance/15/query?
type==vapp&vcloudguid=3f7&orgguid=5f6&vdcguid="341"&vappname="Test
Web Server*"
```

Example response

```
200 OK
Content-Type: application QueryResultList+xml

<QueryResultList
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupAppliance/15/query?
type=vapp&vcloudguid=3f7&orgguid=5f6">
    <VappRef
        guid="d5443f6b-85e"
        name="Ecommerce web farm" />
    <VappRef
        guid="3f79780c-6b0"
        name="HR database" />
</QueryResultList>
```

Get list of vApps backups in backup appliance

Operation

GET /api/admin/extension/EmcBackupService/backupAppliance/{id}/query? ↵
type=backup&vcloudguid={guid}&orgguid={guid}&vdcguid={guid}&vappguid={guid}

Description

Get list of all backups held a specific vCloud, Org, vDC and vApp account in the backup appliance. This is a read only list and is not bound to specific states. If filter is provided it is applied to the corresponding result set.

Input parameters

None

Output parameters

Produce media type(s):
QueryResultList+xml

Output type:
QueryResultList

Example request

```
GET /api/admin/extension/EmcBackupService/backupAppliance/15/query? ↵
type=backup&vcloudguid=3f7&orgguid=5f6&vdcguid=2d4&vappguid=1e7
```

Example response

```
200 OK
Content-Type: QueryResultList+xml

<QueryResultList
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupAppliance/15/query? ↵
type=backup&vcloudguid=3f7&orgguid=5f6&vdcguid=2d4&vappguid=1e7">
    <BackupRef
        date="2013-09-09T14:10:40 GMT"
        size="55834759168"
        seqnum="53"
        retention="2013-11-08T15:00:00 GMT"
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupAppliance/15/query? ↵
type=backup&vcloudguid=3f7&orgguid=5f6&vdcguid=2d4&vappguid=1e7&seqnum
=53">
    <BackupRef
        date="2013-09-09T10:10:26 GMT"
        size="55834759168"
        seqnum="50"
        retention="2013-11-08T11:00:00 GMT"
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupAppliance/15/query? ↵
type=backup&vcloudguid=3f7&orgguid=5f6&vdcguid=2d4&vappguid=1e7&seqnum
=50">
</QueryResultList>
```

Get list of vApp backups in backup appliance

Operation

GET /api/admin/extension/EmcBackupService/backupAppliance/{id}/query?
type=owner&vcloudguid={guid}&orgguid={guid}

Description

Get list of all owners associated with vApps under a specific vCloud and Org in the backup appliance account system. This is a read only list and is not bound to specific states. If filter is provided it will be applied to the corresponding result set.

Input parameters

None

Output parameters

Produce media type(s):
QueryResultList+xml

Output type:
QueryResultList

Example request

```
GET /api/admin/extension/EmcBackupService/backupAppliance/15/query?
type=owner&vcloudguid=3f7&orgguid=5f6
```

```
GET /api/admin/extension/EmcBackupService/backupAppliance/15/query?
type=owner&vcloudguid=3f7&orgguid=5f6&ownername=”John*”
```

Example response

```
200 OK
Content-Type: QueryResultList+xml

<QueryResultList
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupAppliance/15/query?
type=owner&vcloudguid=3f7&orgguid=5f6>
    <OwnerRef
        guid="030”
        name="Emily Mortimer" />
    <OwnerRef
        guid="678”
        name="John Ratzenberger" />
</QueryResultList>
```

Get an activity summary for a backup appliance

Operation

GET /api/admin/extension/EmcBackupService/backupAppliance/{id}/query?type=activity

Description

Get list of recent and current backup and restore jobs in the backup appliance. This is a read only list and is not bound to specific states. If filter is provided it is applied to the corresponding result set. This query would typically be utilized to compose a "dashboard" display or report.

Input parameters

None

Output parameters

Produce media type(s):
QueryResultList+xml

Output type:
QueryResultList

Example request

```
GET /api/admin/extension/EmcBackupService/backupAppliance/15/query?
type=activity
```

Example response

```
200 OK
Content-Type: application QueryResultList+xml

<QueryResultList
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupAppliance/15/query?type=activity">
    <ActivityRef
        type="scheduleBackup"
        state="Failed"
        status="Failed"
        startedby=""
        schedulename="Daily 6AM Pacific"
        retentionname="Bronze Service 3 month retention"
        progress="0"
        bytesprocessed="0"
        newbytesprocessed="0"
        primarybytesprocessed="0"
        errors="1"
        warnings="0"
```

```
        starttime="2013-09-09T14:00:09 GMT"
        endtime="2013-09-09T14:00:27 GMT"
        effectiveretention="2013-11-08T22:47:22 GMT"
        vcloudguid="5d022727-5921-4793-9458-03d5af80be29"
        vcloudname="vcloud-west"
        orgguid="681f8907-f0cb-4372-a481-6b113f220a59"
        orgname="Stone_Brewery"
        vappguid="d8b06400-6887-4d96-b2e8-4c880511deb9"
        vappname="Shipping"
        vappownername="Clyde S Dale"/>
    <ActivityRef
        type="scheduleBackup"
        state="Completed"
        status="Completed"
        startedby=""
        schedulename="Daily 2PM Pacific"
        retentionname="Bronze Service 3 month retention"
        progress="100"
        bytesprocessed="53448"
        newbytesprocessed="38603"
        primarybytesprocessed="162033"
        errors="0"
        warnings="0"
        starttime="2013-09-08T10:00:06 GMT"
        endtime="2013-09-08T10:09:55 GMT"
        effectiveretention="2013-11-08T22:47:22 GMT"
        vcloudguid="5d022727-5921-4793-9458-03d5af80be29"
        vcloudname="vcloud-west"
        orgguid="681f8907-f0cb-4372-a481-6b113f220a59"
        orgname="Stone_Brewery"
        vappguid="6245e42a-9e0c-4a4b-8c79-f81b8d22c2af"
        vappname="Accounting"
        vappownername="Clyde S Dale"/>
    <ActivityRef
        type="restore"
        state="Completed"
        status="Completed"
        startedby="root"
        schedulename="Admin On-Demand Schedule"
        progress="100"
        bytesprocessed="1272"
        newbytesprocessed="1272"
        primarybytesprocessed="3135"
        errors="0"
        warnings="0"
        starttime="2013-09-06T23:41:24 GMT"
        endtime="2013-09-06T23:47:19 GMT"
        vcloudguid="5d022727-5921-4793-9458-03d5af80be29"
        vcloudname="vcloud-west"
        orgguid="681f8907-f0cb-4372-a481-6b113f220a59"
        orgname="Stone_Brewery"
        vappguid="6245e42a-9e0c-4a4b-8c79-f81b8d22c2af"
        vappname="Accounting"
        vappownername="Clyde S Dale"/>
    <ActivityRef
        type="backup"
        state="running"
        startedby="schedule"
        schedulename="Gold SLA Pacific timezone"
        retentionname="Gold SLA"
        progress="70"
        primarybytesprocessed="123000000"
        newbytesprocessed="7402847"
        errors="0"
        warnings="1"
        starttime="2012-011-02T13:09:00"
        effectiveretention="2019-011-03T13:00:00"
        vcloudguid="1272728-939"
        vcloudname="Los Angeles vCloud"
        orgguid="8383831-931"
```

```
        orgname="Dinoco"
        vappguid="d5443f6b-85e"
        vappname="HR database"
        vappownername="John Doe" />
</QueryResultList>
```

Get a health and capacity summary for a backup appliance

This operation returns the capacity and current utilization of a backup appliance. If attached Data Domain appliances are present, the capacity and utilization of these Data Domain appliances is included in the output.

Operation
GET /api/admin/extension/EmcBackupService/backupAppliance/{id}/query?type=appliancestate

Description
Get list of all health and capacity metrics for the backup appliance. This is a read only list.

Input parameters
None

Output parameters
Produce media type(s):
QueryResultList+xml

Output type:
QueryResultList

Example request

```
GET /api/admin/extension/EmcBackupService/backupAppliance/15/query?
type=appliancestate
```

Example response

```
200 OK
Content-Type: QueryResultList+xml

<QueryResultList>
    <ApplianceStateRef
        hostname="Avamar15.denver.dinoco.com"
        size="15000000000"
        usedbytes="1"
        nodecount="7"
        version="7.000"
        state="Full Access"
        maintwindow="T07:00-T9:00"
        lastcheckpoint="2012-011-02T13:09:00"
        license="123-456" />
    <ApplianceStateRef
        hostname="DataDomain1.denver.dinoco.com"
        size="25000000000"
        usedbytes="2"
        version="5.000"
        state="Full Access"
        dedupeeffectiveness="85"
        maintwindow="T07:00-T9:00"
        license="123-456" />
</QueryResultList>
```

Get the list of orphaned VMs found during the migration process

Operation

GET /api/admin/extension/EmcBackupService/backupAppliance/*{{appliance-id}}*/orphanedVms?show=all&page=*{{pagenumber}}*&pageSize=*{{pagesize}}*

Header: **vcp-version=3.0**

Authorization: vCD SA

Description

Get the list of orphaned VMs found during the migration process. A VM is marked as orphaned if the VDC UUID is null during the migration process, and this flag is immutable. The parameter `show` requires the server to filter the results (defaults to `all`, values are `all` and `unassigned`). The page and page size parameters optionally allow the inventory to be retrieved in blocks. The default page size is 20, the default page is 1.

Input parameters

GET filter: string page: int (page is 1-base) pageSize: int

Output parameters

Produce media type(s): application/xml

Output type: OrphanedVmList<OrphanedVm>

Example request

```
GET /api/admin/extension/EmcBackupService/backupAppliance/
954e5e6e-68dc-4b25-8b00-8ee7d97e325b/orphanedVms?
show=all&page=1&pageSize=50
```

Example response

```
200 OK

Content-Type:
application/xml

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>

<OrphanedVMs total="2">
    <OrphanedVm id="02b872ae-1c90-4d17-b0e6-87f3d95822c1"
name="vm1-1">
        <VmInstanceUuid>503943fc-ff05-33d7-c209-0b3de39c16a7</
VmInstanceUuid>
        <NameOnDatastore>[datastore1] vm1-1/vm1-1.vmx</
NameOnDatastore>
        <AvamarPath>/clients/client1.example.com/vCD/
a03ed316-4eab-41da-b685-a3b6506f1497/4b126623-
cbe4-45f6-8d65-2ecec5b6b8e6/vApps/590d389e-328d-4b52-be24-
bb81bee13809</AvamarPath>
        <vCenterPath>/system/org1-phoenix (4b126623-
cbe4-45f6-8d65-2ecec5b6b8e6)/vdc1-phoenix
(33e29902-32be-452e-97fe-039fea5400d8)/vm1-1-11168ac7-347a-4c90-8bdd-
dc87e8dc7c6 (590d389e-328d-4b52-be24-bb81bee13809)</vCenterPath>
        <vCenterClient>client1.example.com</vCenterClient>
        <Organization id="4b126623-cbe4-45f6-8d65-2ecec5b6b8e6"
href="https://vcloud.example.com/api/admin/org/4b126623-
cbe4-45f6-8d65-2ecec5b6b8e6" name="org1-phoenix"/>
        <Datacenter id="33e29902-32be-452e-97fe-039fea5400d8"
href="https://vcloud.example.com/api/admin/vdc/
33e29902-32be-452e-97fe-039fea5400d8" name="vdc1-phoenix"/>
    </OrphanedVm>
    <OrphanedVm id="67bfff2d-0916-46a9-bbd3-b4fc1d096616" name="vm-
migrate-11">
        <VmInstanceUuid>50394054-e9fe-4fc3-873f-c9ea25c37849</
```

```
VmInstanceUuid>
        <NameOnDatastore>[datastore1] vm-migrate-11/vm-
migrate-11.vmx</NameOnDatastore>
        <AvamarPath>/clients/client1.example.com</AvamarPath>
        <vCenterPath></vCenterPath>
        <vCenterClient>client1.example.com</vCenterClient>
    </OrphanedVm>
</OrphanedVMs>
```

Backup operations on a BackupAppliance

This section includes the following topics:

Get a backup from a backup appliance

Operation

GET /api/admin/extension/EmcBackupService/backupAppliance/{id}/backups?vcloudguid={id}&orgguid={id}&vdcguid={id}&vappguid={id}&seqnum={id}

Description

Retrieve a backup from a backup appliance that is filtered by the query parameters.

Input parameters

None

Output parameters

Produce media type(s):
vAppBackupDetail+xml

Output type:
VAppBackupDetail

Example request

```
GET /api/admin/extension/EmcBackupService/backupAppliance/1/backups?
vcloudguid=11&orgguid=22&vdcguid=23&vappguid=12&seqnum=104
```

Example response

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<vAppBackupDetail type="vappbackup+xml" name="sample cloud vapp"
bytesprocessed="137438967730" newbytes="2855" state="completed"
status="success" startedby="adhoc"
starttime="2016-02-05T20:19:32.523Z"
endtime="2016-02-05T20:31:13.191Z"
effectiveretention="2016-06-04T20:19:20.000Z">
    <VmBackupList>
        <VmBackup include="true" href="https://vcloud.example.com/api/
vApp/vm-1" name="ubuntu10-x86" status="success">
            <Disk include="true" controllerinstanceid="1"
capacity="131072" diskname="Hard disk 1" diskinstanceid="2000"
addressofparent="0" addressonparent="0"/>
        </VmBackup>
    </VmBackupList>
</vAppBackupDetail>
```

Update a backup on a backup appliance

Operation

PUT /api/admin/extension/EmcBackupService/backupAppliance/{id}/backups?vcloudguid={id}&orgguid={id}&vdcguid={id}&vappguid={id}&seqnum={id}

Description

Update the retention period of a backup, which is filtered by the query parameters.

Input parameters
None

Output parameters
Produce media type(s):
task+xml

Output type:
TaskType

Example request

```
PUT /api/admin/extension/EmcBackupService/backupAppliance/1/backups?
vcloudguid=11&orgguid=22&vdcguid=23&vappguid=12&seqnum=104

Content-Type: vAppBackupDetail+xml

<vAppBackupDetail type="vappbackup+xml" name="sample cloud vapp"
effectiveretention="2018-06-04"/>
```

Example response

```
202 Accepted
Content-Type: task+xml
<Task
    href="https://vcloud.example.com/api/task/3f7"
    id="urn:vcloud:task:3f7"
    name="task" type="application/vnd.vmware.vcloud.task+xml"
    status="running"
    operation=" Modify Backup for Virtual Application (12)"
    serviceNamespace="com.emc.vcp.backup">
    <Details></Details>
    <Organization
        href="https://vcloud.example.com/api/org/22"
        name="System"
        type="application/vnd.vmware.vcloud.org+xml"/>
    <Owner
        href="urn:vcloud:backupAppliance:1"
        id="1"
        name="Avamar-Backup-Appliance-1"
        type="application/vnd.emc.vcp.backupAppliance+xml"/>
    <User
        href="https://vcloud.example.com/api/admin/user/c2f"
        name="administrator"
        type="application/vnd.vmware.admin.user+xml"/>
    <Progress>0</Progress>
    <StartTime>2016-02-04T14:12:43.913-07:00</StartTime>
</Task>
```

Delete a backup from a backup appliance

Operation
DELETE /api/admin/extension/EmcBackupService/backupAppliance/{id}/backups?
vcloudguid={id}&orgguid={id}&vdcguid={id}&vappguid={id}&seqnum={id}

Description
Delete a backup from a backup appliance that is filtered by the query parameters.

Input parameters
None

Output parameters
Produce media type(s):
None

Output type:
None

Example request

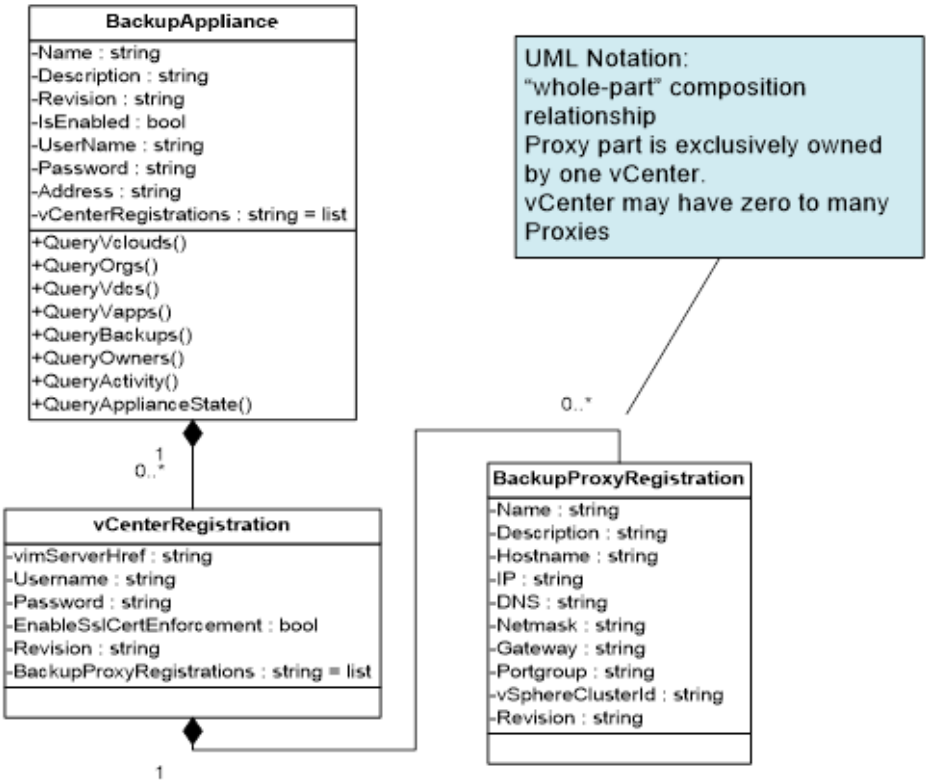
```
DELETE /api/admin/extension/EmcBackupService/backupAppliance/1/
backups?vcloudguid=11&orgguid=22&vdcguid=23&vappguid=12&seqnum=104
```

Example response

```
202 Accepted
```

BackupAppliance object taxonomy

Figure 13 BackupAppliance object taxonomy



Assign orphaned VMs to a VDC

Operation

PUT /api/admin/extension/EmcBackupService/backupAppliance/*{{appliance-id}}*/orphanedVms

Header: **vcp-version=3.0**

Authorization: vCD SA

Description

This operation assigns or unassigns the orphaned VMs of a specific appliance to an Org or VDC.

Input parameters

Body: application/xml
InputBody

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<UpdateOrphanedVmParam>
    <Operation>unassign</Operation>
    <VdcUuid>03c611e8-8390-4e3d-9990-f5bc61b1fb6f</VdcUuid>
    <OrphanedVmsUuids>
        <OrphanedVmUuid>283ba42f-d9b1-4203-a9e7-3cbcd8434ecb</
OrphanedVmUuid>
        <OrphanedVmUuid>ea54d7ac-aacf-45d2-b258-f3f7420a44ae</
OrphanedVmUuid>
    </OrphanedVmsUuids>
</UpdateOrphanedVmParam>
```

Output parameters

```
Success: 200

Failed:
```

Example request
none

Example response
none

Get the list of migrated VDCs associated with the backup appliance

Operation
GET /api/admin/extension/EmcBackupService/backupAppliance/*{{appliance-id}}*/migratedVdcs

Header: **vcp-version=3.0**

Description
After you migrate an organization, this operation lists the migrated VDCs that are associated with the backup appliance through a backup repository. You can assign orphan VMs to the listed VDCs.

Input parameters
None

Output parameters
Produce media type(s):
application/xml

Output type:
VdcRefList

Example request

```
GET /api/admin/extension/EmcBackupService/backupAppliance/
54e5e6e-68dc-4b25-8b00-8ee7d97e325b/migratedVdcs
Accept: application/*+xml;version=20.0;vcp-version=3.0
```

Example response

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<VdcRefList>
    <VdcRef
        id="63b2f05e-5993-4aca-9d0d-e6b1c937c5de"
        href="https://vcloud.example.com/api/admin/vdc/
63b2f05e-5993-4aca-9d0d-e6b1c937c5de"
        name="orgVDC-canny">
        <OrgRef id="044f485e-6ecd-4859-93b1-384fa2d33e7f"
            href="https://vcloud.example.com/api/admin/org/
```

```
044f485e-6ecd-4859-93b1-384fa2d33e7f"
            name="org-canny"/>
    </VdcRef>
</VdcRefList>
```

CHAPTER 9

Org Registrations

This section contains the following topics:

Introduction to Org Registrations

An Org must be associated with a Backup Service before any Org vDC can engage in backup/restore activities, and before any Org vDC specific backup policies can be defined.

Orgs references are added to a Backup service as an OrgRegistration.

Organization reference elements

Table 23 Organization reference elements

Element	Type	Description
Name	String	
Description	String	
Revision	String	
OrgHref	String	vCloud Director Href for an existing vCloud Org

Add an Org reference to Backup Service

Operation
POST /api/admin/extension/EmcBackupService/orgRegistrations

Description
Register an Org with the backup service.

Input parameters
Consume media type(s):
RegisterOrgParams+xml

`Name` attribute is allowed for convenience but is ignored. Only the `href` attribute is used to identify the Org.

Input type(s):
RegisterOrgParamsType

Output parameters
Produce media type(s):
task+xml

Output type:
TaskType

Example request

```
POST /api/admin/extension/EmcBackupService/orgRegistrations
Content-Type: RegisterOrgParams +xml

<RegisterOrgParams>
    <OrgReference
        type="application/vnd.vmware.vcloud.admin.organization+xml"
        href="https://vcloud.example.com/api/admin/org/1"
        id=1
        name=”Dinoco”/>
</RegisterOrgParams>
```

Example response

```
202 Accepted
Content-Type: task+xml

<Task
    href="https://vcloud.example.com/api/task/d4b"
    id="urn:vcloud:task:d4b"
    name="task"
    type="application/vnd.vmware.vcloud.task+xml"
    status="running"
    operation="Registering an Organization with vCloud Director Data
Protection Extension
         (1)"
    serviceNamespace="com.emc.vcp.backup">
    <Details></Details>
    <Organization
        ...
        type="application/vnd.vmware.vcloud.org+xml"/>
    <Owner
        href="https://vcloud.example.com/api/admin/org/1"
        name="Dinoco"
        type="application/vnd.vmware.admin.organization+xml"/>
    <User
        href="https://vcloud.example.com/api/admin/user/243"
        name="Admin"
        type="application/vnd.vmware.admin.user+xml"/>
    <Progress>0</Progress>
    <StartTime>2013-09-10T04:29:54.217-07:00</StartTime>
</Task>
```

Get Org Registration references

Operation
GET /api/admin/extension/EmcBackupService/orgRegistrations

Description
List Org registrations.

Input parameters
None

Output parameters
Produce media type(s):
orgRegistrationReferences+xml

Output type:
OrgRegistrationReferences

Example request

```
GET /api/admin/extension/EmcBackupService/orgRegistrations
```

Example response

```
200 Accepted
Content-Type: orgRegistrationReferences+xml


<OrgRegistrationReferences>
    <OrgRegistrationReference
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/orgRegistration/bb7"
        id="bb7"
        name="Pepsi"
        type="application/vnd.emc.vcp.orgRegistration+xml"/>
    <OrgRegistrationReference
```

```
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/orgRegistration/e13"
        id="e13"
        name="Coke"
        type="application/vnd.emc.vcp.orgRegistration+xml"/>
</OrgRegistrationReferences>
```

Get Org Registration summary

Operation
GET /api/admin/org/*{{org-id}}*/protectionOverview

Header: **vcp-version=4.0**

Description
Get all policies with ad hoc quota informational and warning messages.

Consider the following notes:

- This operation returns information about the ad hoc backup configuration for the specified organization:

Parameter or object	Description
quotaValue	The ad hoc backup quota value.
quotaUsage	The ad hoc backup quota usage.
adhocRetentionDays	The ad hoc backup retention period.
migrationDone	Whether the Org was migrated to the vCD DPE.
PolicyRef	A series of objects that identify the applicable policies.
RepoVdcRefs	A series of objects that identify the applicable Org VDCs.

- If the backup repository has no referenced VDCs, the response does not include the RepoVdcRefs element.

Input parameters
None

Output parameters
Produce media type(s):
application/xml

Output type:
OrgOverview

Example request

```
GET /api/admin/org/faf4dc69-38b7-4d66-baa1-f29e61b75980/
protectionOverview
```

Example response

```
200 OK
Content-Type:
application/xml

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<OrgOverview
    quotaValue="53687091200"
    quotaUsage="0"
    adhocRetentionDays="60"
```

```
    href="https://vcloud.example.com/api/admin/org/faf4dc69-38b7-4d66-
baa1-f29e61b75980"
    name="company"
    migrationDone="true">
    <PolicyRef
        href="https://vcloud.example.com/api/admin/extension/vdc/
03c611e8-8390-4e3d-9990-f5bc61b1fb6f/BackupPolicy/bd1a9d32-ce0d-4316-
b404-20d5c501c4de"
        name="policy-monthly"
        quotaValue="53687091200"
        quotaUsage="12884901888"
        quotaEnforced="false"
        vdcName="company-tech"
        quotaWarning="false"
        enabled="true"/>
    <PolicyRef
        href="https://vcloud.example.com/api/admin/extension/vdc/
03c611e8-8390-4e3d-9990-f5bc61b1fb6f/BackupPolicy/96b97e12-
f064-4646-8af4-965923e2a7ee"
        name="policy-weekly"
        quotaValue="53687091200"
        quotaUsage="38654705664"
        quotaEnforced="false"
        vdcName="company-tech"
        quotaWarning="false"
        enabled="true"/>
    <PolicyRef
        href="https://vcloud.example.com/api/admin/extension/vdc/
03c611e8-8390-4e3d-9990-f5bc61b1fb6f/BackupPolicy/
5cf4c1c7-2ab8-4736-9ce6-ecd7edd2400f"
        name="policy-ondemand"
        quotaValue="53687091200"
        quotaUsage="0"
        quotaEnforced="false"
        vdcName="company-tech"
        quotaWarning="false"
        enabled="true"/>
    <RepoVdcRefs>
        <VdcRef
            id="d1e58679-ceab-4952-aea9-d423a74f6275"
            href="https://vcloud.example.com/api/admin/vdc/d1e58679-
ceab-4952-aea9-d423a74f6275"
            name="company-fin01"/>
        <VdcRef
            id="9b10ab50-c81b-4bba-803a-a04bda9bfdd8"
            href="https://vcloud.example.com/api/admin/vdc/9b10ab50-
c81b-4bba-803a-a04bda9bfdd8"
            name="company-hr"/>
        <VdcRef
            id="03c611e8-8390-4e3d-9990-f5bc61b1fb6f"
            href="https://vcloud.example.com/api/admin/vdc/
03c611e8-8390-4e3d-9990-f5bc61b1fb6f"
            name="company-tech"/>
    </RepoVdcRefs>
</OrgOverview>
```

Migrate VMs to the vCD DPE

Operation
POST /api/admin/org/*{{org-id}}*/Migrate

Header: **`vcp-version=3.0`**

Description
Migrate all the VMs under *{{org-id}}* to the vCD DPE. This requires administrator permission.

Input parameters
None

Output parameters
Produce media type(s):
application/xml

Output type:
None (status code:200)

Example request

```
POST /api/admin/org/369de5ae-a1f9-4c75-9281-3b48332d2d04/Migrate
```

Example response

```
POST

202 ACCEPTED

Content-Type:
application/xml

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<Task
    xmlns="http://www.vmware.com/vcloud/v1.5"
    href="https://vcloud.example.com/api/task/ae530e19-1182-42c6-9e42-
fdeb40459df9"
    id="urn:vcloud:task:ae530e19-1182-42c6-9e42-fdeb40459df9"
    name="task"
    type="application/vnd.vmware.vcloud.task+xml"
    status="queued"
    operation="Migrate Organization avamar(Id: 369de5ae-
a1f9-4c75-9281-3b48332d2d04)"
    operationName="startMigration"
    serviceNamespace="com.emc.vcp.backup"
    startTime="2018-07-31T03:05:49.645-04:00"
    expiryTime="2018-10-29T03:05:49.645-04:00"
    cancelRequested="false">
    <Owner
        name="avamar"
        type="application/vnd.vmware.admin.organization+xml"
        href="https://vcloud.example.com/api/admin/org/369de5ae-
a1f9-4c75-9281-3b48332d2d04"/>
    <User
        name="administrator"
        type="application/vnd.vmware.admin.user+xml"
        href="https://vcloud.example.com/api/admin/user/d95b641c-
be2a-4ca2-9032-0d89adc9c3a6"/>
    <Organization
        name="avamar"
        type="application/vnd.vmware.vcloud.org+xml"
        href="https://vcloud.example.com/api/org/369de5ae-
a1f9-4c75-9281-3b48332d2d04"/>
    <Progress>0</Progress>
    <Details/>
</Task>
```

Update customized content for the Advanced Backup and Recovery tab

Operation
PUT /api/admin/extension/EmcBackupService/org/*{{org-id}}*/infoPage

Header: **`vcp-version=3.0`**

Authorization: vCD SA

Description
Replaces the customized content on the **Advanced Backup and Recovery** tab. Specify the descriptive text for the page header, the section names, and the relevant items within each section.

Input parameters
Consume media type(s):

application/xml

InfoPage:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<InfoPage version="{{SoftwareVersion}}">
    <Description>{{PageDescription}}</Description>
    <Section name="{{Section1_Name}}">
        <Item name="{{Item1_Name}}">
            <URL>http://{{FQDN}}</URL>
            <Description>{{URLToolTipText}}</Description>
        </Item>
        <Item name="{{Item2_Name}}">
            <URL>http://{{FQDN}}</URL>
            <Description>{{URLToolTipText}}</Description>
        </Item>
    </Section>

    <Section name="{{SectionN_Name}}">
        <Item name="{{ItemN_Name}}">
            <URL>http://{{FQDN}}</URL>
            <Description>{{URLToolTipText}}</Description>
        </Item>
    </Section>
</InfoPage>
```

For the InfoPage:

- The `version` attribute for the `InfoPage` element is reserved for future expansion purposes. Set *{{SoftwareVersion}}* to the vCD DPE release number.

  For example, `18.2`.
- *{{PageDescription}}* represents the descriptive text to display at the top of the **Advanced Backup and Recovery** tab.
- *{{Section_Name}}* represents the names the sections that group individual items.

For each item:

- *{{Item_Name}}* represents the link display text.
- *{{FQDN}}* represents the link target.
- *{{URLToolTipText}}* represents the descriptive text to display on mouse-over.

If the InfoPage is empty (`<InfoPage/>` or `<InfoPage></InfoPage>`), the vCD DPE hides the **Advanced Backup and Recovery** tab.

Output parameters
Produce media type(s):
application/xml

Output type:
InfoPage

Example request

```
PUT /api/admin/extension/EmcBackupService/org/1234/infoPage
Accept: application/*+xml;version=20.0;vcp-version=3.0
```

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<InfoPage version="18.2">
    <Description>The following services are available from the
service provider:</Description>
    <Section name="DPAgent Service">
        <Item name="BackupAppliance 1">
            <URL>http://backupappliance1.example.com/dtlt.html</URL>
            <Description>The management portal for backup appliance
1</Description>
        </Item>
        <Item name="BackupAppliance 2">
            <URL>http://backupappliance2.example.com/dtlt.html</URL>
            <Description>The management portal for backup appliance
2</Description>
        </Item>
    </Section>
    <Section name="File Level Restore (FLR) Service">
        <Item name="FLR Server">
            <URL>http://flrserver.example.com/login.html</URL>
            <Description>The FLR UI portal</Description>
        </Item>
    </Section>
    <Section name="Email Service">
        <Item name="Email Server">
            <URL>http://email.example.com</URL>
            <Description>Email server portal</Description>
        </Item>
    </Section>
</InfoPage>
```

Example response

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<InfoPage version="18.2">
    <Description>The following services are available from the
service provider:</Description>
    <Section name="DPAgent Service">
        <Item name="BackupAppliance 1">
            <URL>http://backupappliance1.example.com/dtlt.html</URL>
            <Description>The management portal for backup appliance
1</Description>
        </Item>
        <Item name="BackupAppliance 2">
            <URL>http://backupappliance2.example.com/dtlt.html</URL>
            <Description>The management portal for backup appliance
2</Description>
        </Item>
    </Section>
    <Section name="File Level Restore (FLR) Service">
        <Item name="FLR Server">
            <URL>http://flrserver.example.com/login.html</URL>
            <Description>The FLR UI portal</Description>
        </Item>
    </Section>
    <Section name="Email Service">
        <Item name="Email Server">
            <URL>http://email.example.com</URL>
            <Description>Email server portal</Description>
        </Item>
    </Section>
</InfoPage>
```

Retrieve customized content for the Advanced Backup and Recovery tab

Operation

GET /api/admin/extension/EmcBackupService/org/*{{org-id}}*/infoPage

Header: **`vcp-version=3.0`**

Authorization: vCD SA

Description
Retrieves the current customized content on the **Advanced Backup and Recovery** tab for review.

Input parameters
None

Output parameters
Produce media type(s):
application/xml

Output type:
InfoPage

If the output InfoPage is empty (`<InfoPage/>` or `<InfoPage></InfoPage>`), the vCD DPE hides the **Advanced Backup and Recovery** tab.

Example request

```
GET /api/admin/extension/EmcBackupService/org/1234/infoPage
Accept: application/*+xml;version=20.0;vcp-version=3.0
```

Example response

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<InfoPage version="18.2">
    <Description>The following services are available from the
service provider:</Description>
    <Section name="DPAgent Service">
        <Item name="BackupAppliance 1">
            <URL>http://backupappliance1.example.com/dtlt.html</URL>
            <Description>The management portal for backup appliance
1</Description>
        </Item>
        <Item name="BackupAppliance 2">
            <URL>http://backupappliance2.example.com/dtlt.html</URL>
            <Description>The management portal for backup appliance
2</Description>
        </Item>
    </Section>
    <Section name="File Level Restore (FLR) Service">
        <Item name="FLR Server">
            <URL>http://flrserver.example.com/login.html</URL>
            <Description>The FLR UI portal</Description>
        </Item>
    </Section>
    <Section name="Email Service">
        <Item name="Email Server">
            <URL>http://email.example.com</URL>
            <Description>Email server portal</Description>
        </Item>
    </Section>
</InfoPage>
```

CHAPTER 10

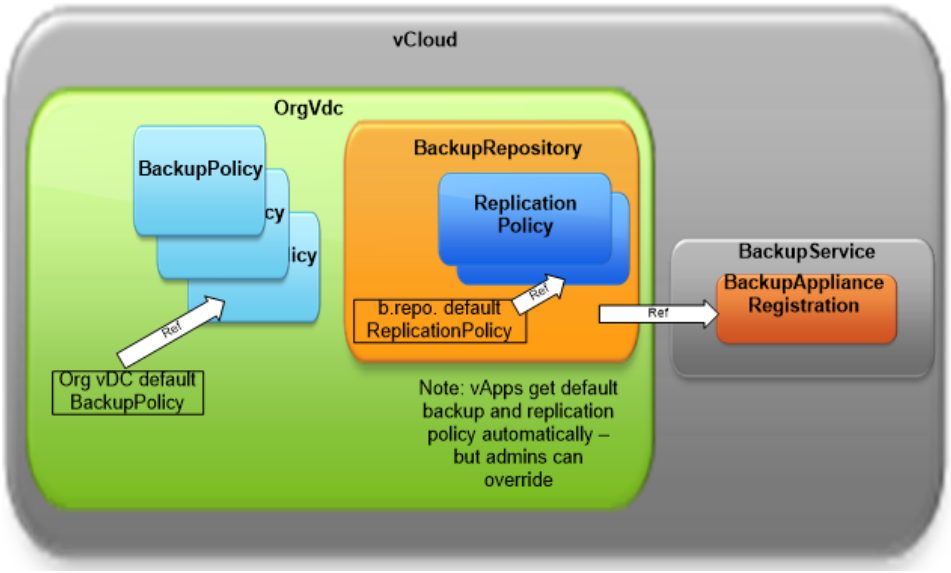
Backup extensions to vCloud Org vDC objects

This section contains the following topics:

Backup extensions to vCloud Org vDC objects

On registration of an Org with the backup service, the Org vDC's associated with that Org have access to various backup related extensions. All backup extensions are available to provider admins. Selected extensions are also available to Org admins.

Figure 14 Org vDC extension Overview



New backup related resources available on an Org vDC after a completed Org Registration

Operation
GET /api/admin/vdc/{id}

Description
Retrieve the Admin view of an organization vDC.

Input parameters
None

Output parameters
Produce media type(s):
application/vnd.vmware.admin.vdc+xml

Output type:
AdminVdcType

Example request

```
GET /api/admin/vdc/44
```

Example response
Org vDC REST API backup extensions are in *italics*:

```
200 OK
Content-Type: application/vnd.vmware.admin.vdc+xml

<AdminVdc
```

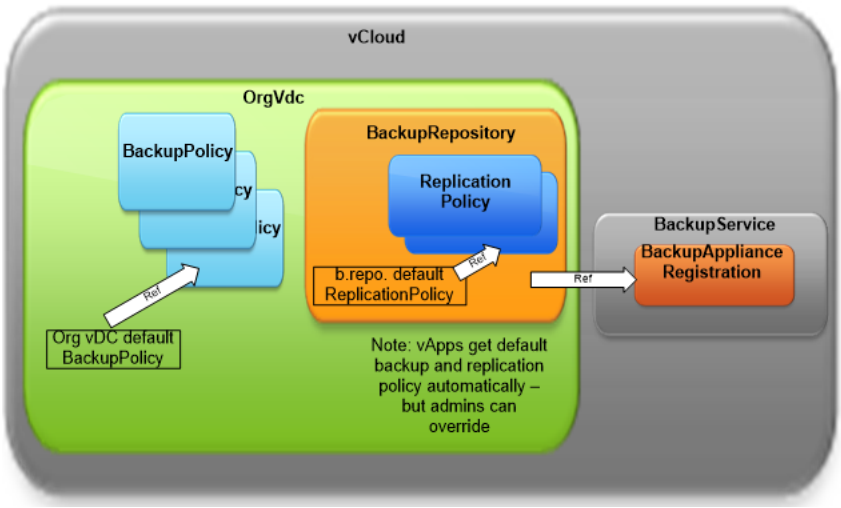
```
    xmlns="http://www.vmware.com/vcloud/v1.5"
    xmlns:vmext="http://www.vmware.com/vcloud/extension/v1.5"
    status="1"
    name="org26vdc1"
    id="urn:vcloud:vdc:44"
    type="application/vnd.vmware.admin.vdc+xml"
    href="https://vcloud.example.com/api/admin/vdc/44">
    <VCloudExtension required="false">
        <vmext:VimObjectRef>
            <vmext:VimServerRef
                type="application/vnd.vmware.admin.vmwvirtualcenter
+xml"
                name="vc1"
                href="https://vcloud.example.com/api/admin/extension/
vimServer/9" />
            <vmext:MoRef>resgroup-949</vmext:MoRef>
            <vmext:VimObjectType>RESOURCE_POOL</vmext:VimObjectType>
        </vmext:VimObjectRef>
    </VCloudExtension>
    <!-- standard VDC Links omitted -->
    <Link
        rel="edit"
        type="application/vnd.emc.vcp.backupConfiguration+xml"
        href="http://vcloud.example.com/api/admin/extension/vdc/44/
BackupConfiguration"/>
    <Link
        rel="down"
        type="application/vnd.emc.vcp.backupConfiguration+xml"
        href="http://vcloud.example.com/api/admin/extension/vdc/44/
BackupConfiguration"/>
    <Link
        rel="down"
        type="application/vnd.emc.vcp.backupRepository+xml"
        href="http://vcloud.example.com/api/admin/extension/vdc/44/
ActiveBackupRepository"/>
    <Link
        rel="add"
        type="application/vnd.emc.vcp.backupRepository+xml"
        href="http://vcloud.example.com/api/admin/extension/vdc/44/
BackupRepositories"/>
    <Link
        rel="edit"
        type="application/vnd.emc.vcp.backupRepository+xml"
        href="http://vcloud.example.com/api/admin/extension/vdc/44/
ActiveBackupRepository"/>
    <Link
        rel="down"
        type="application/vnd.emc.vcp.backupPolicy+xml"
        href="http://vcloud.example.com/api/admin/extension/vdc/44/
DefaultBackupPolicy"/>
    <Link
        rel="edit"
        type="application/vnd.emc.vcp.backupPolicy+xml"
        href="http://vcloud.example.com/api/admin/extension/vdc/44/
DefaultBackupPolicy"/>
    <Link
        rel="down"
        type="application/vnd.emc.vcp.backupRepositoryRefList+xml"
        href="http://vcloud.example.com/api/admin/extension/vdc/44/
BackupRepositories"/>
    <Link
        rel="add"
        type="application/vnd.emc.vcp.backupPolicy+xml"
        href="http://vcloud.example.com/api/admin/extension/vdc/44/
BackupPolicies"/>
    <Link
        rel="down"
        type="application/vnd.emc.vcp.backupPolicyRefList+xml"
        href="http://vcloud.example.com/api/admin/extension/vdc/44/
BackupPolicies"/>
```

```
    <Description>Example vDC</Description>
    <AllocationModel>AllocationVApp</AllocationModel>
    <ResourceEntities />
    <AvailableNetworks />
    <VdcStorageProfiles name="Silver">
        <Units>MB</Units>
        <Limit>20480</Limit>
        <Default>false</Default>
    </VdcStorageProfiles>
</AdminVdc>
```

Add a backup policy to an Org vDC

A backup policy is generated from a backup policy template. The backup policy is initialized as a copy of the configuration in the backup policy template.

Figure 15 Org VDC BackupPolicy configuration by provider admin



The backup policy includes a read only reference to the "parent" backup policy template. This is designed to allow the option of selective inheritance of changes that are made in the backup policy template catalogs at the root level. Changes to a root level backup policy template are not propagated automatically, but if this behavior is desired, a query facility is available to find the "child" backup policies that have been derived from a backup policy template. After any derived backup policies have been located, the backup policy update operation can be used to copy the configuration in the updated backup policy template to the child backup policy.

The reason that selective static inheritance was chosen, over the alternative (automatic dynamic inheritance of policy changes that are made in a parent catalog entry), is to support public service provider use cases. For example, suppose that a public service provider initially offers a "gold" level service level agreement (SLA) that includes backup service with a 5 year retention of all backups. And, further suppose that many customers agree to long term contracts for service. Subsequently, the provider decides to reduce the "gold" offering's backup retention to 4 years to reduce the prices. If the change to the catalog for gold service was automatically propagated, the legacy customers might be surprised by the result. The implementation of static inheritance (based on copy) allows a provider to exercise control over propagation of changes that are made at the parent catalog level.

Operation
POST /api/admin/extension/vdc/{id}/BackupPolicies

Description

Create a new backup policy by copying a specified entry from the backup policy template catalog. The backup policy can be referenced by vApps Org vDC-wide.

Input parameters

backupPolicyTemplateReferenceParams+xml

Consume media type(s):
backupPolicyTemplateReferenceParams+xml

Input type:
BackupPolicyTemplateReferenceParamsType

Output parameters

Produce media type(s):
backupPolicy+xml

Output type:
BackupPolicy

Example request

```
POST /api/admin/extension/vdc/44/BackupPolicies
Content-Type: backupPolicyTemplateReferenceParams+xml

<BackupPolicyParams>
    <BackupPolicyTemplateReference href="https://
vcloud.example.com/api/admin/extension/EmcBackupService/
backupPolicyTemplate/19" />
</BackupPolicyParams>
```

Example response

```
201 Created
Content-Type: backupPolicy+xml

<BackupPolicy
    name="Gold level production vApps"
    revision="1"
    href="https://vcloud.example.com/api/admin/extension/vdc/{id}/
BackupPolicy/99">
    <Description>Pacific timezone Gold service production vApps</
Description>
    <vCloud:Link
        href="https://vcloud.example.com/api/admin/extension/vdc/44/
BackupPolicies"
        rel="up"
        type="backupPolicy+xml" />
    <IsEnabled>true</IsEnabled>
    <BackupScheduleSection>
        <NativeTimezone>America/Los_Angeles</NativeTimezone>
        <ActivationInterval>2007-03-01T13:00:00/2008-05-11T15:30:00</
ActivationInterval>
        <BackupScheduleType>DailyRepeat</BackupScheduleType>
        <StartHours>1,6,17</StartHours>
        <BackupWindowDuration>PT3H</BackupWindowDuration>
    </BackupScheduleSection>
    <BackupRetentionSection>
        <AdaptiveRetentionEnabled>false</AdaptiveRetentionEnabled>
        <BackupRetentionType>Duration</BackupRetentionType>
        <Duration>P20D</Duration>
        <FirstYearlyRetentionDuration>P5Y</
FirstYearlyRetentionDuration>
        <FirstMonthlyRetentionDuration>P3M</
FirstMonthlyRetentionDuration>
        <FirstWeeklyRetentionDuration>P9W</
FirstWeeklyRetentionDuration>
        <FirstDailyRetentionDuration>P60D</
FirstDailyRetentionDuration>
```

```
    </BackupRetentionSection>
    <BackupOptionSetSection>
        <vAppBackupOptionFlags>””</vAppBackupOptionFlags>
        <VmBackupOptionFlags>””</VmBackupOptionFlags>
    </BackupOptionSetSection>
    <ParentBackupPolicyTemplate
        name="Gold level production vApps"
        href="https:// ... /EmcBackupService/backupPolicyTemplate/19">
        <Description>Pacific timezone Gold service production vApps</
Description>
        <BackupSchedule
            name="Daily Schedule-1AM-6AM-5PM"
            revision=”1.0000”
            href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupSchedule/55">
            <NativeTimezone>America/Los_Angeles</NativeTimezone>

<ActivationInterval>2007-03-01T13:00:00/2008-05-11T15:30:00</
ActivationInterval>
            <Description>Pacific Gold service daily schedule</
Description>
            <BackupScheduleType>DailyRepeat</BackupScheduleType>
            <StartHours>1,6,17</StartHours>
            <BackupWindowDuration>PT3H</BackupWindowDuration>
        </BackupSchedule>
        <BackupRetention
            name="Gold Retention"
            type="backupRetention+xml"
            revision=”1.0000”
            href="https:// ... /EmcBackupService/backupRetention/56">
            <Description>Gold service retention - 20 days</
Description>
            <AdaptiveRetentionEnabled>false</AdaptiveRetentionEnabled>
            <BackupRetentionType>Duration</BackupRetentionType>
            <Duration>P20D</Duration>
            <FirstYearlyRetentionDuration>P5Y</
FirstYearlyRetentionDuration>
            <FirstMonthlyRetentionDuration>P3M</
FirstMonthlyRetentionDuration>
            <FirstWeeklyRetentionDuration>P9W</
FirstWeeklyRetentionDuration>
            <FirstDailyRetentionDuration>P60D</
FirstDailyRetentionDuration>
        </BackupRetention>
        <BackupOptionSet
            name="OptionSet Gold"
            revision=”1.0000”
            href="https:// ... /EmcBackupService/backupOptionSet/56">
            <Description>Gold service options</Description>
            <vAppBackupOptionFlags>””</vAppBackupOptionFlags>
            <VmBackupOptionFlags>””</VmBackupOptionFlags>
        </BackupOptionSet>
    </ParentBackupPolicyTemplate>
</BackupPolicy>
```

Update a backup policy

The following example shows only the PUT operation on the backup policy. This is normally preceded by a REST API GET operation (not shown), followed by a change of the result returned from the GET.

Operation
PUT /api/admin/extension/vdc/{id}/BackupPolicy/{id}

Description
Update a backup policy.

Input parameters

Consume media type(s):
backupPolicyTemplateReference+xml

Input type:
BackupPolicyTemplateReferenceType

Output parameters

Produce media type(s):
backupPolicy+xml

Output type:
BackupPolicyType

Example request

```
PUT /api/admin/extension/vdc/{id}/BackupPolicy/99
Content-Type: backupPolicyTemplateReference+xml

<BackupPolicy id="99" href="https://vcloud.example.com/api/admin/
extension/vdc/{id}/BackupPolicy/99" name="Gold level production
vApps" type="backupPolicy+xml" revision="1">
    <Description>Pacific timezone Gold service production vApps</
Description>
    <Link id="73387754-60e5-4498-8a5c-64d600a02197" href="https://
vcloud.example.com/api/admin/extension/vdc/44/BackupPolicies"
rel="up"/>
    <IsEnabled>true</IsEnabled>
    <BackupOptionSetSection type="backupOptionSet+xml">
        <vAppBackupOptionFlags></vAppBackupOptionFlags>
        <VmBackupOptionFlags></VmBackupOptionFlags>

    </BackupOptionSetSection>
    <BackupRetentionSection type="backupRetention+xml">
        <AdaptiveRetentionEnabled>false</AdaptiveRetentionEnabled>
        <BackupRetentionType>Duration</BackupRetentionType>
        <Duration>P20D</Duration>
        <FirstDailyRetentionDuration>P60D</
FirstDailyRetentionDuration>
        <FirstMonthlyRetentionDuration>P3M</
FirstMonthlyRetentionDuration>
        <FirstWeeklyRetentionDuration>P9W</
FirstWeeklyRetentionDuration>
        <FirstYearlyRetentionDuration>P5Y</
FirstYearlyRetentionDuration>

    </BackupRetentionSection>
    <BackupScheduleSection type="backupSchedule+xml">
        <ActivationInterval>2007-03-01T13:00:00.000Z/
2008-05-11T15:30:00.000Z</ActivationInterval>
        <BackupScheduleType>DailyRepeat</BackupScheduleType>
        <BackupWindowDuration>PT3H</BackupWindowDuration>
        <NativeTimezone>America/Los_Angeles</NativeTimezone>
        <StartHours>1,19</StartHours>

    </BackupScheduleSection>
    <ParentBackupPolicyTemplate id="19" href="https://
vcloud.example.com/api/admin/extension/EmcBackupService/
backupPolicyTemplate/19" name=" Gold level production vApps Template"
type="backupPolicy+xml">
        <BackupOptionSetSection type="backupOptionSet+xml">
            <vAppBackupOptionFlags></vAppBackupOptionFlags>
            <VmBackupOptionFlags></VmBackupOptionFlags>

        </BackupOptionSetSection>
        <BackupRetentionSection type="backupRetention+xml">
            <AdaptiveRetentionEnabled>false</AdaptiveRetentionEnabled>
            <BackupRetentionType>Duration</BackupRetentionType>
            <Duration>P20D</Duration>
```

```
            <FirstDailyRetentionDuration>P60D</
FirstDailyRetentionDuration>
            <FirstMonthlyRetentionDuration>P3M</
FirstMonthlyRetentionDuration>
            <FirstWeeklyRetentionDuration>P9W</
FirstWeeklyRetentionDuration>
            <FirstYearlyRetentionDuration>P5Y</
FirstYearlyRetentionDuration>

        </BackupRetentionSection>
        <BackupScheduleSection type="backupSchedule+xml">
            <ActivationInterval>2007-03-01T13:00:00.000Z/
2008-05-11T15:30:00.000Z</ActivationInterval>
            <BackupScheduleType>DailyRepeat</BackupScheduleType>
            <BackupWindowDuration>PT3H</BackupWindowDuration>
            <NativeTimezone>America/Los_Angeles</NativeTimezone>
            <StartHours>1,19</StartHours>

        </BackupScheduleSection>

    </ParentBackupPolicyTemplate>
</BackupPolicy>
```

Example response

```
200 OK
Content-Type: backupPolicy+xml

<BackupPolicy id="99" href="https://vcloud.example.com/api/admin/
extension/vdc/{id}/BackupPolicy/99" name="Gold level production
vApps" type="backupPolicy+xml" revision="1">
    <Description>Pacific timezone Gold service production vApps</
Description>
    <Link id="73387754-60e5-4498-8a5c-64d600a02197" href="https://
vcloud.example.com/api/admin/extension/vdc/44/BackupPolicies"
rel="up"/>
    <IsEnabled>true</IsEnabled>
    <BackupOptionSetSection type="backupOptionSet+xml">
        <vAppBackupOptionFlags></vAppBackupOptionFlags>
        <VmBackupOptionFlags></VmBackupOptionFlags>

    </BackupOptionSetSection>
    <BackupRetentionSection type="backupRetention+xml">
        <AdaptiveRetentionEnabled>false</AdaptiveRetentionEnabled>
        <BackupRetentionType>Duration</BackupRetentionType>
        <Duration>P20D</Duration>
        <FirstDailyRetentionDuration>P60D</
FirstDailyRetentionDuration>
        <FirstMonthlyRetentionDuration>P3M</
FirstMonthlyRetentionDuration>
        <FirstWeeklyRetentionDuration>P9W</
FirstWeeklyRetentionDuration>
        <FirstYearlyRetentionDuration>P5Y</
FirstYearlyRetentionDuration>

    </BackupRetentionSection>
    <BackupScheduleSection type="backupSchedule+xml">
        <ActivationInterval>2007-03-01T13:00:00.000Z/
2008-05-11T15:30:00.000Z</ActivationInterval>
        <BackupScheduleType>DailyRepeat</BackupScheduleType>
        <BackupWindowDuration>PT3H</BackupWindowDuration>
        <NativeTimezone>America/Los_Angeles</NativeTimezone>
        <StartHours>1,19</StartHours>

    </BackupScheduleSection>
    <ParentBackupPolicyTemplate id="19" href="https://
vcloud.example.com/api/admin/extension/EmcBackupService/
backupPolicyTemplate/19" name=" Gold level production vApps Template"
type="backupPolicy+xml">
        <BackupOptionSetSection type="backupOptionSet+xml">
            <vAppBackupOptionFlags></vAppBackupOptionFlags>
```

```
            <VmBackupOptionFlags></VmBackupOptionFlags>

        </BackupOptionSetSection>
        <BackupRetentionSection type="backupRetention+xml">
            <AdaptiveRetentionEnabled>false</AdaptiveRetentionEnabled>
            <BackupRetentionType>Duration</BackupRetentionType>
            <Duration>P20D</Duration>
            <FirstDailyRetentionDuration>P60D</
FirstDailyRetentionDuration>
            <FirstMonthlyRetentionDuration>P3M</
FirstMonthlyRetentionDuration>
            <FirstWeeklyRetentionDuration>P9W</
FirstWeeklyRetentionDuration>
            <FirstYearlyRetentionDuration>P5Y</
FirstYearlyRetentionDuration>

        </BackupRetentionSection>
        <BackupScheduleSection type="backupSchedule+xml">
            <ActivationInterval>2007-03-01T13:00:00.000Z/
2008-05-11T15:30:00.000Z</ActivationInterval>
            <BackupScheduleType>DailyRepeat</BackupScheduleType>
            <BackupWindowDuration>PT3H</BackupWindowDuration>
            <NativeTimezone>America/Los_Angeles</NativeTimezone>
            <StartHours>1,19</StartHours>

        </BackupScheduleSection>

    </ParentBackupPolicyTemplate>
</BackupPolicy>
```

Delete a backup policy in an Org vDC

Operation
DELETE /api/admin/extension/vdc/{id}/BackupPolicy/{id}

Description
Delete a backup policy.

The delete operation fails (response = 409 Conflict), under the following conditions:

- If the backup policy is the default backup policy for the Org vDC.
- If the backup policy is explicitly selected as an over-ride backup policy for any vApp in the Org vDC,

Input parameters
None

Output parameters
None

Example request

```
DELETE /api/admin/extension/vdc/{id}/BackupPolicy/99
```

Example response

```
204 No Content
```

Set the default backup policy for vApps in an Org VDC

Operation
PUT /api/admin/extension/vdc/*{{id}}*/DefaultBackupPolicy

Description
Change the default backup policy that gets applied to any vApps in an Org VDC which have not been explicitly configured with a backup policy.

Input parameters
Consume media type(s):
backupPolicy+xml

Input type:
ReferenceType

Output parameters
Produce media type(s):
backupPolicy+xml

Output type:
ReferenceType

Example request

```
PUT /api/admin/extension/vdc/44/DefaultBackupPolicy

Content-Type: backupPolicy+xml

<ReferenceType
    type="backupPolicy+xml"
    name="Gold level production vApps"
    href="https://vcloud.example.com/api/admin/extension/vdc/{id}/
BackupPolicy/99" />
```

Example response

```
200 Ok
Content-Type: backupPolicy+xml

<ReferenceType
    id="99"
    href="https://vcloud.example.com/api/admin/extension/vdc/{id}/
BackupPolicy/99"
    name="Gold level production vApps">
    <Description>Pacific timezone Gold service production vApps</
Description>
</ReferenceType>
```

Get the default backup policy for vApps in an Org vDC

Operation
GET /api/admin/extension/vdc/{id}/DefaultBackupPolicy

Description
Retrieve a reference to the default backup policy for an Org vDC.

Input parameters
None

Output parameters
Produce media type(s):
backupPolicy+xml

Output type:
ReferenceType

Example request

```
GET /api/admin/extension/vdc/44/DefaultBackupPolicy
```

Example response

```
200 OK
Content-Type: backupPolicy+xml

<ReferenceType
    id="99"
    href="https://vcloud.example.com/api/admin/extension/vdc/44/
BackupPolicy/99"
    name="Gold level production vApps">
    <Description>Pacific timezone Gold service production vApps</
Description>
</ReferenceType>
```

Set the backup policy for a vApp to an explicit non-default policy

Operation

1. GET /api/admin/extension/vdc/*{{vdc-id}}*/BackupPolicy/*{{policy-id}}*/attachedVapps?standalone=*[true,false]*&page=*{{pagenumber}}*&pageSize=*{{pagesize}}*
   - If the standaloneVM attribute is `true`, the VM name is also returned.
   - Supports pagination and the standalone VM query filter.
2. PUT /api/admin/extension/vdc/*{{vdc-id}}*/BackupPolicy/*{{policy-id}}*/attachedVapps

Header: **`vcp-version=3.0`**

Note

For vCD DPE version 3.0, the PUT operation does not set a specific policy as the vApp default policy, and sets the `fullyprotected` attribute to `true`

Description

1. GET

   Return the attached vApps of a policy that has a fully protected flag, total VMs, protected VMs, and unprotected VMs.

2. PUT

   Replace a vApp's existing backup policy, which could be either an explicit or default backup policy, with a different policy

Input parameters
Consume media type(s):
application/vnd.vmware.vcloud.vApp+xml

Input type:
ReferenceType

Output parameters
Produce media type(s):
ReferenceType+xml

Output type:
VappReflist

Example request

```
GET /api/admin/extension/vdc/1190bfe8-4b65-4fa7-a8a8-395c77e56b73/
BackupPolicy/b96ac7e7-9426-4e6b-9d3d-b93ac21a4c20/attachedVapps?
format=idrecords&page=1&pageSize=20&standalone=false

PUT /api/admin/extension/vdc/{id}/BackupPolicy/99/attachedVapps
Content-Type: application/vnd.vmware.vcloud.vApp+xml
<ReferenceType
    type="application/vnd.vmware.vcloud.vApp+xml"
    href="https://vcloud.example.com/api/vApp/vapp-7" />
```

Example response

```
GET
200 OK
Content-Type:
application/xml
<VappRefList total="3">
    <VappRecord
        id="049b9a74-cd71-40bf-8bf3-e24f111c3003"
        href="https://vcloud.example.com/api/vApp/vapp-049b9a74-
cd71-40bf-8bf3-e24f111c3003"
        name="centOS7-temp"
        fullyProtected="false"
        standaloneVM="false"
        totalVMs="3"
        protect-edVms="2"
        unprotectedVms="1"/>
    <VappRecord
        id="edd77af7-7182-49fe-953d-22a0b7b75922"
        href="https://vcloud.example.com/api/vApp/vapp-
edd77af7-7182-49fe-953d-22a0b7b75922"
        name="new standalone VM-e748df52-9850-435e-b8b0-8e426768d17d"
        fullyProtected="true"
        standaloneVM="true"
        vmName="new standalone VM"
        totalVMs="1"
        protectedVms="1"
        unprotect-edVms="0"/>
    <VappRecord
        id="c1b9f681-1c62-458d-967e-1b057b8611e3"
        href="https://vcloud.example.com/api/vApp/vapp-
c1b9f681-1c62-458d-967e-1b057b8611e3"
        name="vApp_system_16"
        fullyProtected="true"
        standaloneVM="true"
        vmName="centOS7-template-0002"
        totalVMs="1"
        protectedVms="1"
        unprotectedVms="0"/>
</VappRefList>

PUT
204 No Content
```

Get the vApps attached to a backup policy

Operation

GET /api/admin/extension/vdc/*{{vdc-id}}*/BackupPolicy/*{{policy-id}}*/attachedVapps

Header: **vcp-version=3.0**

Description

Get the list of vApps that are attached to the backup policy.

Input parameters
None

Output parameters
Produce media type(s):
VappRefList+xml

Output type:
VappRefList

Example request

```
GET /api/admin/extension/vdc/11/BackupPolicy/22/attachedVapps
```

Example response

```
200 OK
Content-Type: VappRefList+xml

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<VappRefList>
    <VappRef id="22" href="https://vcloud.example.com/api/vApp/
vapp-22" name="My VApp 1"/>
    <VappRef id="23" href="https://vcloud.example.com/api/vApp/
vapp-23" name="My VApp 2"/>
    <VappRef id="24" href="https://vcloud.example.com/api/vApp/
vapp-23" name="My VApp 3"/>
</VappRefList>
```

Get the list of vApps for backup or restore

Operation
GET /api/admin/extension/EmcBackupService/backupRepository/*{{repo-id}}*/vapps?show=*[restore,backup]*&page=*{{pagenumber}}*&pageSize=*{{pagesize}}*

Header: **`vcp-version=3.0`**

Description
Get the list of vApps for backup or restore. The `page` and `pageSize` parameters optionally allow the inventory to be retrieved in blocks.

Note

API version 3.0 adds the `expired` attribute to `VappDetail`. This attribute is a boolean value that matches the `isExpired` property from vCloud Director.

Input parameters
None

Output parameters
Produce media type(s):
application/xml

Output type:
QueryResultList

Example request

```
GET /api/admin/extension/EmcBackupService/backupRepository/7eb733cd-
bf7f-40b9-beb6-c86290b170ed/vapps?page=1&pageSize=20&show=backup
```

Example response

```
GET
200 OK
```

```
Content-Type:
application/xml

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<QueryResultList
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRepository/7eb733cd-bf7f-40b9-beb6-
c86290b170ed/vapps?page=1&pageSize=20&show=backup"
    total="3">
    <VappDetail
        numberOfVMs="0"
        vAppguid="ddc8a15b-e3ae-423e-a28a-485fbf81ccfb"
        vAppName="vAppABC"
        status="POWERED_OFF"
        vdcName="coke"
        expired="false"
        eligible="true">
        <policy guid="8f3d39ff-b801-4785-92f0-d8328fff8d90"
                name="Policy-daily"/>
        <policy guid="c68250ed-ec35-4e44-8649-90704ae997a3"
                name="11-policy-monthly-d"/>
    </VappDetail>
    <VappDetail
        numberOfVMs="2"
        vAppguid="4444947c-6e8a-45ac-946f-f9c566082f01"
        vAppName="vApp_Fully_Configured_0457"
        status="POWERED_OFF"
        vdcName="coke"
        expired="false"
        eligible="true">
        <policy guid="8f3d39ff-b801-4785-92f0-d8328fff8d90"
                name="Policy-daily"/>
    </VappDetail>
</QueryResultList>
```

Get the list of standalone VMs for backup or restore

Operation
GET /api/admin/extension/EmcBackupService/backupRepository/*{{repo-id}}*/vms?show=*[restore,backup]*&page=*{{pagenumber}}*&pageSize=*{{pagesize}}*

Header: **`vcp-version=3.0`**

Description
Get the list of VMs for backup or restore. The `page` and `pageSize` parameters optionally allow the inventory to be retrieved in blocks.

Note

API version 3.0 adds the `expired` attribute to `VMDetail`. This attribute is a boolean value that matches the `isExpired` property from vCloud Director.

Input parameters
None

Output parameters
Produce media type(s):
VappRefList+xml

Output type:
QueryResultList

Example request

```
GET /api/admin/extension/EmcBackupService/backupRepository/7eb733cd-
bf7f-40b9-beb6-c86290b170ed/vms?show=backup&page=1&pageSize=20
```

Example response

```
200 OK
Content-Type:
application/xml

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<QueryResultList
     href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRepository/7eb733cd-bf7f-40b9-beb6-
c86290b170ed/vms?show=backup&page=1&pageSize=20"
     total="4">
     <VMDetail
          vAppguid="489fb51b-7b37-4291-916a-db2177f16507"
          vmguid="30e0dba8-f79d-4faa-804d-82c574572d13"
          vAppName="test-disk_new-ab8002a7-29cc-437d-afcf-
abdb6db88e4f"
          vmName="test-disk_new"
          status="POWERED_OFF"
          vdcName="coke"
          expired="false"
          eligible="true">
          <policy
               guid="8f3d39ff-b801-4785-92f0-d8328fff8d90"
               name="Policy-daily"/>
     </VMDetail>
     <VMDetail
          vAppguid="c08ddbe8-0150-4df9-b8a5-265d401f4de0"
          vmguid="12ace533-6e8e-4e02-9590-0a1828097d1d"
          vAppName="test-disk-90c8f5f4-75dd-4d48-939a-1e13a6ffea47"
          vmName="test-disk"
          status="POWERED_OFF"
          vdcName="coke"
          expired="false"
          eligible="true">
          <policy
               guid="8f3d39ff-b801-4785-92f0-d8328fff8d90"
               name="Policy-daily"/>
     </VMDetail>
</QueryResultList>
```

Get the list of migrated VMs for restore

Operation

GET /api/admin/extension/EmcBackupService/backupRepository/*{{repo-id}}*/vms?show=migrate&page=*{{pagenumber}}*&pageSize=*{{pagesize}}*

Header: **vcp-version=3.0**

Description

Get the list of migrated VMs for restore.

Input parameters

None

Output parameters

Produce media type(s):
QueryResultList

Output type:
QueryResultList

Example request

```
GET /api/admin/extension/EmcBackupService/backupRepository/
7eb733cdbf7f-40b9-beb6-c86290b170ed/vms?show=migrate&page=1&pageSize=5
```

Example response

```
<QueryResultList
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRepository/
f429058c-556c-4359-9b2c-270a18e2b679/vms?
show=migrate&page=1&pageSize=5"
    total="5">
    <VMDetail
        vmInstanceUuid="50041778-308b-9630-566c-2b05c8e6e871"
        vAppguid="69eedeb7-b4d2-4d63-b7a9-fecd40e03f1b"
        vmguid="35b6b25e-3ea7-4555-9fe6-3741621c0766"
        vAppName="vApp-1-coke"
        vmName="VM-2-centos"
        status="POWERED_OFF"
        vdcName="coke-vdc-1"
        eligible="false"/>
    <VMDetail
        vmInstanceUuid="5004790c-9e75-a6f0-ea57-7810a8ebce52"
        vAppguid="69eedeb7-b4d2-4d63-b7a9-fecd40e03f1b"
        vmguid="5c540c11-c2d6-4c65-960d-75b194ec9edf"
        vAppName="vApp-1-coke"
        vmName="VM-1-centos"
        status="POWERED_OFF"
        vdcName="coke-vdc-1"
        eligible="false"/>
    <VMDetail
        vmInstanceUuid="5004156e-e286-42c8-8957-0b752f74a688"
        vAppguid="69eedeb7-b4d2-4d63-b7a9-fecd40e03f1b"
        vmguid="46957ef4-1fb3-4863-a85e-cb08e90d5510"
        vAppName="vApp-1-coke"
        vmName="VM-3-centos"
        status="POWERED_OFF"
        vdcName="coke-vdc-1"
        eligible="false"/>
    <VMDetail
        vmInstanceUuid="5004cae6-3407-d7ef-11f3-d5d47eda589b"
        vAppguid="81b58583-994f-4180-a866-7b26f6fa9cc5"
        vmguid="64c93ba7-aa15-430e-92b1-db02f162ef7a"
        vAppName="Standalone-coke-d51ccf74-2dcc-4cb5-9a70-
e1d0f9b4241c"
        vmName="Standalone-coke"
        status="SUSPENDED"
        vdcName="coke-vdc-1"
        eligible="false"/>
    <VMDetail
        vmInstanceUuid="50045604-10c3-a4de-bbcb-fb178eed643a"
        vmName="vm1 (75489762-0cbe-4226-a91c-6f8215e56d69)"
        status="DELETED"/>
</QueryResultList>
```

Set VMs attached to a vApp under one policy

API version
2.0

Operation
PUT /api/admin/extension/vdc/{{vdc-id}}/BackupPolicy/{{policy-id}}/attachedVms

Description
Attach the VMs associated with a vAPP to a policy.

Consider the following notes:

- If the FullyProtected attribute of one vApp is set to true for one vApp, the attached VMs are ignored since all the VMs are automatically protected.
- Currently the PUT operation only handles one vApp and the associated VMs in the input body.
- Both the vApp ID and VM ID are mandatory for input body.

Input parameters
None

Output parameters
Produce media type(s):
QueryResultList+xml

Output type:
QueryResultList

Example request

```
GET /api/admin/extension/EmcBackupService/backupRepository/7eb733cd-
bf7f-40b9-beb6-c86290b170ed/vms?show=backup&page=1&pageSize=20
```

Example response

```
GET
200 OK
Content-Type:
application/xml
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<QueryResultList href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRepository/7eb733cd-bf7f-40b9-beb6-
c86290b170ed/vms?show=backup&page=1&pageSize=20" total="4">
    <VMDetail vAppguid="489fb51b-7b37-4291-916a-db2177f16507"
vmguid="30e0dba8-f79d-4faa-804d-82c574572d13" vAppName="test-disk_new-
ab8002a7-29cc-437d-afcf-abdb6db88e4f" vmName="test-disk_new"
status="POWERED_OFF" vdcName="coke" eligible="true">
        <policy guid="8f3d39ff-b801-4785-92f0-d8328fff8d90"
name="Policy-daily"/>
    </VMDetail>
    <VMDetail vAppguid="c08ddbe8-0150-4df9-b8a5-265d401f4de0"
vmguid="12ace533-6e8e-4e02-9590-0a1828097d1d" vAppName="test-
disk-90c8f5f4-75dd-4d48-939a-1e13a6ffea47" vmName="test-disk"
status="POWERED_OFF" vdcName="coke" eligible="true">
        <policy guid="8f3d39ff-b801-4785-92f0-d8328fff8d90"
name="Policy-daily"/>
    </VMDetail>
</QueryResultList>
```

Get VMs attached to a vApp under one policy

API version
2.0

Operation
GET /api/admin/extension/vdc/{{vdc-id}}/BackupPolicy/{{policy-id}}/
attachedVms?vappguid={vAPPid}

Description
Get attached VMs of a vApp to a single policy

Consider the following notes:

- The vApp ID filter is optional. If the vApp ID filter is set, the response only includes the matched vApp and its child VMs.
- If the FullyProtected attribute of the vApp is set to false, the response includes all protected child VMs.

- If the FullyProtected attribute of one vApp is set to true, the response includes all its child VMs.

Input parameters
None

Output parameters
Produce media type(s):
application/xml

Output type:
ProtectedVappRefList

Example request

```
GET
api/admin/extension/vdc/1190bfe8-4b65-4fa7-a8a8-395c77e56b73/
BackupPolicy/c68250ed-ec35-4e44-8649-90704ae997a3/attachedVms?
vappguid=5c07e829-1401-4590-b953-c34fc3cec3bf
```

Example response

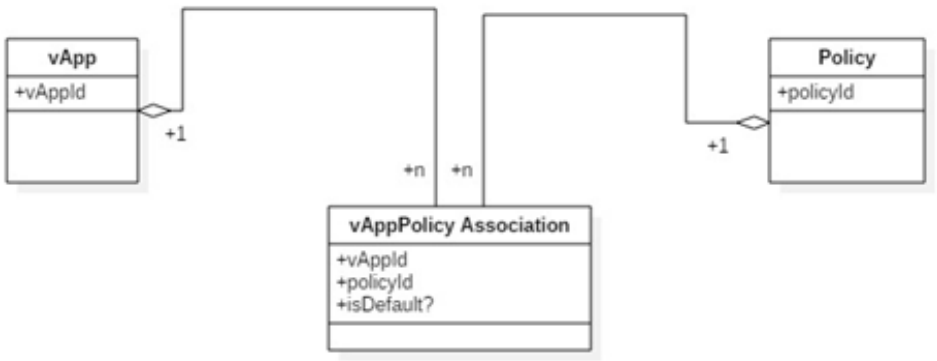
```
GET

200 OK

Content-Type:
application/xml

<?xmlversion="1.0" encoding="UTF-8" standalone="yes"?>
<ProtectedVappRefList><ProtectedVappRef FullyProtected="false"
id="5c07e829-1401-4590-b953-c34fc3cec3bf"><ChildrenVms><ChildrenVm
id="0b51073e-0348-4b9b-9cab-182bddc00470" href="https://
vcloud.example.com/api/vApp/
vm-0b51073e-0348-4b9b-9cab-182bddc00470"/></ChildrenVms></
ProtectedVappRef> </ProtectedVappRefList>
```

Set multiple backup policies for a vApp

With API Version 2.0 and later, a vApp can be associated with multiple backup policies, with one of the backup policies being a default.

The purpose of this feature is to allow the consumer to configure VMs and VM Disks for a vApp to be backed up on different schedules, and configure different retention periods on the backups. This is done using exclusion criteria on policies to configure which VMs and/or VM Disks are backed up on a particular policy. In addition, ad-hoc vApp Backups can now be run specifying a backup policy to be used.

Figure 16 Set multiple backup policies for a vApp



API version
2.0

Operation
PUT /api/admin/vApp/vapp-{id}/backupPolicies

Description
Set multiple backup policies for one vApp.

Consider the following notes:

1. In API version 2.0, there must be one default policy for each vApp. In API version 3.0, it is not mandatory to apply a default policy for each vApp. Therefore, vApps may not have a default policy.
2. API version 3.0 automatically sets the fullyprotected attribute to true for each policy for the specific vApp.

Input parameters
Consume media type(s):
BackupPolicyRefList+xml

Input type:
BackupPolicyRefList

Output parameters
Produce media type(s):
application/xml

Output type:
None

Example request

```
PUT /api/admin/vApp/vapp-5c07e829-1401-4590-b953-c34fc3cec3bf/
backupPolicies
Content-Type: BackupPolicyRefList +xml
<BackupPolicyRefList>
<BackupPolicyRef id="155cdb31-90b3-4638-acf3-ac68fa38d285"
name="policy-weekly"/>
<BackupPolicyRef default="true" id="4f47a9e0-70aa-4dcf-a723-
b8e470d18e6a" name="policy-ondemand"/> </BackupPolicyRefList>
```

Example response

```
Content-Type: BackupPolicyRefList +xml
```

Get backup policies for a vApp

API version
2.0

Operation
GET /api/admin/vApp/vapp-{id}/backupPolicies

Description
Get the list of backup policies applied for this vApp. Also indicates which policy is the default for the vApp. The default policy is the one that is used for an ad-hoc backup, when no explicit policy is specified.

Input parameters
None

Output parameters
Produce media type(s):
backupPolicyRefList+xml

Output type:
BackupPolicyRefList

Example request

```
GET /api/admin/vApp/22/BackupPolicies
```

Example response

```
200 OK
Content-Type: backupPolicyRefList+xml

<BackupPolicyRefList>
    <BackupPolicyRef
    default=”true”
        id="9"
        href="https://vcloud.example.com/api/admin/extension/vdc/22/
BackupPolicy/9"
        name="Gold level production vApps"
    <BackupPolicyRef
    default=”false”
        id="10"
        href="https://vcloud.example.com/api/admin/extension/vdc/22/
BackupPolicy/10"
        name="Silver level production vApps"
    <BackupPolicyRef
    default=”false”
        id="11"
        href="https://vcloud.example.com/api/admin/extension/vdc/22/
BackupPolicy/11"
        name="Bronze level production vApps"
</BackupPolicyRefList>
```

Reset the backup policy for a vApp to the default policy

Operation
PUT /api/admin/extension/vdc/{id}/DefaultBackupPolicy/attachedVapps

Description
Remove a vApp's existing backup policy, resulting in reversion to the default backup policy for the vDC which hosts the vApp.

Input parameters
Consume media type(s):
application/vnd.vmware.vcloud.vApp+xml

Input type:
ReferenceType

Output parameters
None

Example request

```
PUT /api/admin/extension/vdc/44/DefaultBackupPolicy/attachedVapps
Content-Type: application/vnd.vmware.vcloud.vApp+xml

<ReferenceType
    type="application/vnd.vmware.vcloud.vApp+xml"
    href="https://vcloud.example.com/api/vApp/vapp-7" />
```

Example response

```
204 No Content
```

Get the list of vApps attached to the Default Backup Policy

Operation
GET /api/admin/extension/vdc/{id}/DefaultBackupPolicy/attachedVapps

Description
Get the list of vApps attached to the default backup policy.

Input parameters
None

Output parameters
Produce media type(s):
VappRefList+xml

Output type:
VappRefList

Example request

```
GET /api/admin/extension/vdc/11/DefaultBackupPolicy/attachedVapps
```

Example response

```
200 OK
Content-Type: VappRefList+xml

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<VappRefList>
    <VappRef id="22" href="https://vcloud.example.com/api/vApp/
vapp-22" name="My VApp 1"/>
    <VappRef id="23" href="https://vcloud.example.com/api/vApp/
vapp-23" name="My VApp 2"/>
    <VappRef id="24" href="https://vcloud.example.com/api/vApp/
vapp-23" name="My VApp 3"/>
</VappRefList>
```

Get list of backup policies in vDC

API version
3.0

Operation
GET /api/admin/extension/vdc/{vdc-id}/BackupPolicies

Description
Get Return policies of the current VDC including policy quota detail, VM number, vApp number, policy status, and the default flag status.

Input parameters
None

Output parameters
Consume media type(s):
application/xml

Output type:
BackupPolicyRefList

Example request

```
GET /api/admin/extension/vdc/1190bfe8-4b65-4fa7-a8a8-395c77e56b73/
BackupPolicies
```

Example response

```
200 OK
Content-Type: backupPolicy+xml

Content-Type:
application/xml
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<BackupPolicyRefList>
    <BackupPolicyRef id="c68250ed-ec35-4e44-8649-90704ae997a3"
href="https://vcloud.example.com/api/admin/extension/vdc/
1190bfe8-4b65-4fa7-a8a8-395c77e56b73/BackupPolicy/c68250ed-
ec35-4e44-8649-90704ae997a3" name="11-policy-monthly-d"/>
    <BackupPolicyRef id="8f3d39ff-b801-4785-92f0-d8328fff8d90"
href="https://vcloud.example.com/api/admin/extension/vdc/
1190bfe8-4b65-4fa7-a8a8-395c77e56b73/BackupPolicy/8f3d39ff-
b801-4785-92f0-d8328fff8d90" name="Policy-daily"/>
</BackupPolicyRefList>
```

Get policy details in vDC

API version
3.0

Operation
GET /api/admin/extension/vdc/{vdc-id}/BackupPolicy/{policy-id}

Description
Get policy details.

Input parameters
None

Output parameters
Consume media type(s):
application/xml

Output type:
BackupPolicy

Example request

```
GET /api/admin/extension/vdc/1190bfe8-4b65-4fa7-a8a8-395c77e56b73/
BackupPolicy/c68250ed-ec35-4e44-8649-90704ae997a3
```

Example response

```
200 OK
Content-Type: backupPolicy+xml
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<BackupPolicy id="c68250ed-ec35-4e44-8649-90704ae997a3" href="https://
vcloud.example.com/api/admin/extension/vdc/1190bfe8-4b65-4fa7-
a8a8-395c77e56b73/BackupPolicy/c68250ed-ec35-4e44-8649-90704ae997a3"
name="11-policy-monthly-d" type="backupPolicy+xml" revision="19">
    <Description>policy-monthlyd</Description>
    <Link id="1190bfe8-4b65-4fa7-a8a8-395c77e56b73" href="https://
vcloud.example.com/api/admin/extension/vdc/1190bfe8-4b65-4fa7-
a8a8-395c77e56b73/BackupPolicies" rel="up"/>
    <IsEnabled>true</IsEnabled>
    <quotaValue>0</quotaValue>
    <quotaUsage>13283360768</quotaUsage>
    <quotaEnforced>false</quotaEnforced>
```

```
    <quotaShowWarning>true</quotaShowWarning>
    <BackupOptionSetSection type="backupOptionSet+xml">
        <vAppBackupOptionFlags></vAppBackupOptionFlags>
        <VmBackupOptionFlags></VmBackupOptionFlags>
    </BackupOptionSetSection>
    <BackupRetentionSection type="backupRetention+xml">
        <AdaptiveRetentionEnabled>true</AdaptiveRetentionEnabled>
        <BackupRetentionType>Duration</BackupRetentionType>
        <Duration>P60D</Duration>
        <FirstDailyRetentionDuration>P60D</
FirstDailyRetentionDuration>
        <FirstMonthlyRetentionDuration>P1M</
FirstMonthlyRetentionDuration>
        <FirstWeeklyRetentionDuration>P2W</
FirstWeeklyRetentionDuration>
        <FirstYearlyRetentionDuration>P1Y</
FirstYearlyRetentionDuration>
    </BackupRetentionSection>
    <BackupScheduleSection type="backupSchedule+xml">
        <ActivationInterval>2018-03-26T12:00:00.000Z/
2068-03-26T11:59:00.000Z</ActivationInterval>
        <BackupScheduleType>MonthlyRepeatDOM</BackupScheduleType>
        <DayOfMonth>1</DayOfMonth>
        <EndTime>07:00</EndTime>
        <NativeTimezone>America/Los_Angeles</NativeTimezone>
        <StartTime>20:00</StartTime>
    </BackupScheduleSection>
    <ParentBackupPolicyTemplate name="policy-monthly-day-template"
type="backupPolicy+xml">
        <quotaEnforced>false</quotaEnforced>
        <quotaShowWarning>false</quotaShowWarning>
        <BackupOptionSetSection type="backupOptionSet+xml">
            <vAppBackupOptionFlags></vAppBackupOptionFlags>
            <VmBackupOptionFlags></VmBackupOptionFlags>
        </BackupOptionSetSection>
        <BackupRetentionSection type="backupRetention+xml">
            <AdaptiveRetentionEnabled>true</AdaptiveRetentionEnabled>
            <BackupRetentionType>Duration</BackupRetentionType>
            <Duration>P60D</Duration>
            <FirstDailyRetentionDuration>P60D</
FirstDailyRetentionDuration>
            <FirstMonthlyRetentionDuration>P1M</
FirstMonthlyRetentionDuration>
            <FirstWeeklyRetentionDuration>P2W</
FirstWeeklyRetentionDuration>
            <FirstYearlyRetentionDuration>P1Y</
FirstYearlyRetentionDuration>
        </BackupRetentionSection>
        <BackupScheduleSection type="backupSchedule+xml">
            <ActivationInterval>2018-03-26T12:00:00.000Z/
2068-03-26T11:59:00.000Z</ActivationInterval>
            <BackupScheduleType>MonthlyRepeatDOM</BackupScheduleType>
            <BackupWindowDuration></BackupWindowDuration>
            <DayOfMonth>1</DayOfMonth>
            <DayOfWeek>0</DayOfWeek>
            <EndTime>07:00</EndTime>
            <NativeTimezone>America/Los_Angeles</NativeTimezone>
            <StartDOWs></StartDOWs>
            <StartHours></StartHours>
            <StartTime>20:00</StartTime>
            <WeekOfMonth>0</WeekOfMonth>
        </BackupScheduleSection>
    </ParentBackupPolicyTemplate>
    </BackupPolicy>
```

Delete the default vDC policy

Operation
DELETE /api/admin/extension/vdc/{{vdc-id}}/DefaultBackupPolicy

Description
Delete the default vDC policy.

Input parameters
None

Output parameters
application/xml

Example request

```
DELETE /api/admin/extension/vdc/1190bfe8-4b65-4fa7-a8a8-395c77e56b73/
DefaultBackupPolicy
```

Example response

```
200 OK
Content-Type: application/xml
```

Org vDC backup operation customization and configuration

Backup policies are initially assigned and configured by a provider Admin. By default, org admins are not allowed to modify the backup policies that are exposed to an Org vDC. A provider Admin can selectively allow org admins to customize certain aspects of backup policy that is configured within an Org vDC.

The purpose of these controls over customization is to support a public provider use case. Aspects of backup policy such as frequency and retention period incur costs to the provider. If the underlying resources that are associated with backup operations are shared across tenants, enforcement of resource consumption constraints allows predictable service for all tenants. A provider Admin can choose to delegate authority over backup policy at a granular level within each Org vDC.

Org vDC backup configuration options related to delegation of authority to Org Admins

Table 24 Org vDC backup configuration options related to delegation of authority to Org Admins

Element	Default	Description
enableBackupPolicyCustomization	False	Allow Org admins to alter backup policies
enableCustomBackupWindow	False	Allow Org admins to change the time of day that backups occur
enableBackupFrequencyUpgrade	False	Allow Org admins to alter backup schedules to allow more frequent backups
enableBackupRetentionUpgrade	False	Allow Org admins to alter backup retention policy to allow longer backup retention
enableAdhocBackup	False	Allow Org admins to trigger an ad-hoc backup request for a vApp

Org vDC backup configuration options related to delegation of authority to vApp owners

Table 25 Org vDC backup configuration options related to delegation of authority to vApp owners

Element	Default	Description
enableAdhocBackup	False	Allow vApp owners to trigger an ad-hoc backup request for a vApp
enableAdhocRestore	False	Allow vApp owners to trigger an ad-hoc restore (rollback of an existing vApp)

Note that Org admins are never allowed to configure replication policy. Since replication consumes external network bandwidth, this is under the exclusive control of provider admins.

Set Org vDC backup configuration

The following example shows the PUT operation on the Org vDC backup configuration. This would normally be preceded by a REST API GET operation. A POST operation is not needed, or supported, since the initial backup configuration is put in place by default, with settings initialized to the defaults.

Operation
PUT /api/admin/extension/vdc/{id}/BackupConfiguration

Description
Change the current backup configuration for the org vDC to the new replacement configuration. All available settings must be specified, which is best insured by using a GET operation to get the current configuration, altering the configuration settings as desired, and submitting the result in this PUT operation.

Input parameters
Consume media type(s):
orgVdcBackupConfiguration+xml

Input type:
OrgVdcBackupConfigurationType

Output parameters
None

Example request
This example shows a setting that would allow an Org Admin to roll back retention and backup frequency, but not upgrade retention or backup frequency.

```
PUT /api/admin/extension/vdc/44/BackupConfiguration
Content-Type: orgVdcBackupConfiguration+xml


<OrgVdcBackupConfiguration id="11" href="https://
vcloud.example.com/api/admin/extension/vdc/44/BackupConfiguration">
    <OrgAdminAuthorizations
        enableBackupPolicyCustomization=”true"
        enableCustomBackupWindow="true"
        enableBackupFrequencyUpgrade="true"
        enableBackupRetentionUpgrade="true"
        enableAdhocBackup="true"/>
    <VappOwnerAuthorizations
```

```
        enableAdhocBackup="false"
        enableAdhocRestore="false"/>
</OrgVdcBackupConfiguration>
```

Example response

```
200 OK
Content-Type: orgVdcBackupConfiguration+xml

<OrgVdcBackupConfiguration id="11" href="https://
vcloud.example.com/api/admin/extension/vdc/44/BackupConfiguration">
    <OrgAdminAuthorizations
        enableBackupPolicyCustomization=”true"
        enableCustomBackupWindow="true"
        enableBackupFrequencyUpgrade="true"
        enableBackupRetentionUpgrade="true"
        enableAdhocBackup="true"/>
    <VappOwnerAuthorizations
        enableAdhocBackup="false"
        enableAdhocRestore="false"/>
</OrgVdcBackupConfiguration>
```

Get Org VDC backup configuration

Operation
GET /api/admin/extension/vdc/*{{vdc-id}}*/BackupConfiguration

Description
Get the current backup configuration for the Org VDC.

Input parameters
None

Output parameters
Consume media type(s):
orgVdcBackupConfiguration+xml

Output type:
OrgVdcBackupConfigurationType

Example request

```
GET /api/admin/extension/vdc/44/BackupConfiguration
```

Example response

```
200 OK
Content-Type: orgVdcBackupConfiguration+xml

<OrgVdcBackupConfiguration
    id="11"
    href="https://vcloud.example.com/api/admin/extension/vdc/44/
BackupConfiguration">
    <OrgAdminAuthorizations
        enableBackupPolicyCustomization="false"
        enableCustomBackupWindow="false"
        enableBackupFrequencyUpgrade="false"
        enableBackupRetentionUpgrade="false"
        enableAdhocBackup="false"/>
    <VappOwnerAuthorizations
        enableAdhocBackup="false"
        enableAdhocRestore="false"/>
</OrgVdcBackupConfiguration>
```

Trigger the restore for migrated VMs

Operation
POST /api/admin/extension/vdc/*{{vdc-id}}*/MigratedVM/*{{migrated-vm-id}}*

Header: **`vcp-version=3.0`**

Authorization: org-admin

Note

{{migrated-vm-id}} is the value for `vmMigratedId` that was returned from the REST API call to list the migrated VMs.

Example of request body:

```
<RestoreMigratedVmParam
    name="new centos7 vm test"
    description="restore from migrated virtual machine">
    <VmInstanceUuid>503943fc-ff05-33d7-c209-0b3de39c16a7</
VmInstanceUuid>
    <BackupNumber>1</BackupNumber>
    <ApplianceUuid>5f90f45d-3995-4493-a536-6dbe74b6a305</
ApplianceUuid>
</RestoreMigratedVmParam>
```

Description
Triggers the restore for the migrated VM as a standalone VM

Input parameters
None

Output parameters
None

Example request

```
POST /api/admin/extension/vdc/33e29902-32be-452e-97fe-039fea5400d8/
MigratedVM/396cef73-e69e-473d-8354-6c5b4b2cbb3c
```

Example response

```
<Task xmlns="http://www.vmware.com/vcloud/v1.5"
    href="https://vcloud.example.com/api/task/
1caa06ed-0f99-4116-89c4-1ff8f1858e60"
    id="urn:vcloud:task:1caa06ed-0f99-4116-89c4-1ff8f1858e60"
    name="task"
    type="application/vnd.vmware.vcloud.task+xml"
    status="running"
    operation="Restore VM from VDC vdc1-phoenix"
    operationName="restoreMigratedVM"
    serviceNamespace="com.emc.vcp.backup"
    startTime="2018-08-06T23:36:23.388-04:00"
    expiryTime="2018-11-04T23:36:23.388-05:00"
    cancelRequested="false">
    <Owner
        name="vdc1-phoenix"
        type="application/vnd.vmware.admin.vdc+xml"
        href="https://vcloud.example.com/api/admin/vdc/
33e29902-32be-452e-97fe-039fea5400d8"/>
    <User
        name="org-admin"
        type="application/vnd.vmware.admin.user+xml"
        href="https://vcloud.example.com/api/admin/user/bcf8b27f-
c5ea-4f05-90e8-7a11d8feaff8"/>
    <Organization name="org1-phoenix"
```

```
        type="application/vnd.vmware.vcloud.org+xml"
        href="https://vcloud.example.com/api/org/4b126623-
cbe4-45f6-8d65-2ecec5b6b8e6"/>
    <Progress>0</Progress>
    <Details></Details>
</Task>
```

Get a policy summary for an Org VDC

Operation
GET /api/admin/extension/vdc/*{{vdc-id}}*/protectionOverview

Header: **vcp-version=3.0**

Description
Get a summary of policies for an Org VDC that includes the size and number of protected VMs for each policy.

Consider the following notes:

- This operation also returns similar information about unprotected VMs within an Org VDC.
- The output contains the names of the default policy and the associated backup repository.

Input parameters
None

Output parameters
Produce media type(s):
application/xml

Output type:
VdcOverview

Example request

```
GET /api/admin/extension/vdc/1190bfe8-4b65-4fa7-a8a8-395c77e56b73/
protectionOverview
```

Example response

```
200 OK
Content-Type:
application/xml

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<VdcOverview
        name="company-tech"
        totalVms="5"
        totalStorage="45097156608"
        unprotectedVms="0"
        unprotectedStorage="0"
        defaultPolicy="policy-ondemand"
        activeBackupRepository="ave-102">
        <PolicyRef
                href="https://vcloud.example.com/api/admin/
extension/vdc/03c611e8-8390-4e3d-9990-f5bc61b1fb6f/BackupPolicy/
5cf4c1c7-2ab8-4736-9ce6-ecd7edd2400f"
                name="policy-ondemand"
                quotaValue="53687091200"
                quotaUsage="0"
                protectedVms="0"
                protectedStorage="0"/>
        <PolicyRef
                href="https://vcloud.example.com/api/admin/
extension/vdc/03c611e8-8390-4e3d-9990-f5bc61b1fb6f/BackupPolicy/
```

```
96b97e12-f064-4646-8af4-965923e2a7ee"
                name="policy-weekly"
                quotaValue="53687091200"
                quotaUsage="38654705664"
                protectedVms="4"
                protectedStorage="38654705664"/>
        <PolicyRef
                href="https://vcloud.example.com/api/admin/
extension/vdc/03c611e8-8390-4e3d-9990-f5bc61b1fb6f/BackupPolicy/
bd1a9d32-ce0d-4316-b404-20d5c501c4de"
                name="policy-monthly"
                quotaValue="53687091200"
                quotaUsage="12884901888"
                protectedVms="2"
                protectedStorage="12884901888"/>
</VdcOverview>
```

CHAPTER 11

Backup Repository

This section includes the following topics:

Backup repository

A backup repository represents a specific configured relationship of a backup appliance with an Org vDC, such that the backup appliance can offer backup and/or restore with relation to the storage in the Org vDC. It is possible to have a backup repository that provides one service (backup or restore) but not the other.

For example, a disk based backup appliance, such as an EMC Avamar appliance, can be configured to replicate backups to a distant physical location. The goal of this replication is generally to provide disaster recovery (DR) for the "smoking crater" use case where the origination site is completely lost. In this scenario, it makes sense to allow the inventory of replicated backups to be visible at the remote (recovery site) cloud for purposes of restore only.

Correct a failed backup repository migration

API version
3.1

Operation
GET, PUT, DELETE /api/admin/extension/EmcBackupService/backupRepository/repo-id/vAppKeyValue?vappguid=111

Description
3 API operations used to correct a failed backup repository migration.

Input parameters
GET

None

PUT

Consume media type(s):
KeyValues +xml

Output type:
KeyValues

DELETE

Output parameters
Produce media type(s):
KeyValues +xml

Output type:
KeyValues

Example request

```
GET /api/admin/extension/EmcBackupService/backupRepository/7eb733cd-
bf7f-40b9-beb6-c86290b170ed/vAppKeyValue?vappguid=60e35311-
bb94-43ac-8e74-975787d903d8
PUT /api/admin/extension/EmcBackupService/backupRepository/7eb733cd-
bf7f-40b9-beb6-c86290b170ed/vAppKeyValue?vappguid=60e35311-
bb94-43ac-8e74-975787d903d8

Content-Type: KeyValues +xml
<KeyValues>
<KeyValue key="BackupStats.1519977254@00:50:56:A2:22:68"
value="1519977254@00:50:56:A2:22:68"/>
</KeyValues>
```

```
DELETE /api/admin/extension/EmcBackupService/backupRepository/
7eb733cd-bf7f-40b9-beb6-c86290b170ed/vAppKeyValue?vappguid=60e35311-
bb94-43ac-8e74-975787d903d8

Content-Type: KeyValues +xml


<KeyValues>
<KeyValue key="BackupStats.1519977254@00:50:56:A2:22:68"
value="1519977254@00:50:56:A2:22:68"/>
</KeyValues>
```

Example response

```
GET
202 Accepted

Content-Type: application/xml

<?xml version="1.0" encoding="UTF-8" standalone="yes"?> <KeyValues
vCloudLocator="*" vCloudGuid="1da8d546-f656-428d-a892-38bd3bd84724"
orgGuid="f68a6dd9-3383-46c0-a95a-f19822942108" vAppGuid="60e35311-
bb94-43ac-8e74-975787d903d8">     <KeyValue key="BackupStats.
1519977254@00:50:56:A2:22:68" value="1519977254@00:50:56:A2:22:68"/
>     <KeyValue key="BackupStats.
1519977254@00:50:56:A2:22:68.BackupCreationDate"
value="2018-04-10T15:35:58.337Z"/>     <KeyValue key="BackupStats.
1519977254@00:50:56:A2:22:68.BackupMaxTotalBytes" value="4693777409"/
>     <KeyValue key="BackupStats.
1519977254@00:50:56:A2:22:68.BackupNewBytes" value="17658"/>
<KeyValue key="BackupStats.
1519977254@00:50:56:A2:22:68.BackupTotalBytes" val-ue="4693573270"/
>     <KeyValue key="BackupStats.
1519977254@00:50:56:A2:22:68.BackupTotalNewBytes" value="33312427"/
>     <KeyValue key="BackupStats.
1519977254@00:50:56:A2:22:68.LastCreationDate"
value="2018-04-10T15:33:05.449Z"/>     <KeyValue key="BackupStats.
1519977254@00:50:56:A2:22:68.NumOfBackups" value="2"/>     <KeyValue
key="BackupStorageIds" value="1519977254@00:50:56:A2:22:68"/>
<KeyValue key="OrgGuid" value="f68a6dd9-3383-46c0-a95a-f19822942108"/
>     <KeyValue key="OrgGuid+OrgName" val-ue="f68a6dd9-3383-46c0-a95a-
f19822942108#avamar"/>     <KeyValue key="OrgName" val-ue="avamar"/
>     <KeyValue key="OrgvDCGuid" value="1190bfe8-4b65-4fa7-
a8a8-395c77e56b73"/>     <KeyValue key="OrgvDCGuid+OrgvDCName"
value="1190bfe8-4b65-4fa7-a8a8-395c77e56b73#coke"/>     <KeyValue
key="OrgvDCName" value="coke"/>     <KeyValue key="OwnerGuid"
value="03970817-2e94-46ba-97f5-1754203c6d77"/>     <KeyValue
key="OwnerGuid+OwnerName"
value="03970817-2e94-46ba-97f5-1754203c6d77#bing"/>     <Key-Value
key="OwnerName" value="bing"/>     <KeyValue key="Standalone"
value="false"/>     <KeyValue key="lastUpdated"
value="2018-04-10T15:33:44.979Z"/>     <KeyValue key="vAppGuid"
value="60e35311-bb94-43ac-8e74-975787d903d8"/>     <KeyValue
key="vAppGuid+vAppName" value="60e35311-
bb94-43ac-8e74-975787d903d8#vApp_Fully_Configured_Jing"/>
<KeyValue key="vAppGuid+vAppName+OrgvDCGuid" value="60e35311-
bb94-43ac-8e74-975787d903d8#vApp_Fully_Configured_Jing#1190bfe8-4b65-4
fa7-a8a8-395c77e56b73"/>     <Key-Value key="vAppGuid+vAppName
+OrgvDCGuid+Standalone" value="60e35311-
bb94-43ac-8e74-975787d903d8#vApp_Fully_Configured_Jing#1190bfe8-4b65-4
fa7-a8a8-395c77e56b73#false"/>     <KeyValue key="vAppName"
value="vApp_Fully_Configured_Jing"/>     <KeyValue key="vCloudGuid"
value="1da8d546-f656-428d-a892-38bd3bd84724"/>     <KeyValue
key="vCloudGuid+vCloudName" value="1da8d546-f656-428d-
a892-38bd3bd84724#VMware+vCloud+Director"/>     <KeyValue
key="vCloudName" value="VMware vCloud Director"/> </KeyValues>
PUT
200 OK

Content-Type: application/xml
```

```
None

DELETE
200 OK

Content-Type: application/xml

None
```

Add a backup repository to an org vDC

Operation
POST /api/admin/extension/vdc/{id}/BackupRepositories

Description
Register a backup repository

Input parameters
Consume media type(s):
RegisterBackupRepositoryParams +xml

Output type:
RegisterBackupRepositoryParams

Output parameters
Produce media type(s):
task+xml

Output type:
TaskType

Example request

```
POST /api/admin/extension/vdc/44/BackupRepositories
Content-Type: RegisterBackupRepositoryParams +xml

<RegisterBackupRepositoryParams>
    <BackupRepositoryParams name="Avamar-Backup-Repository-19">
        <Description>EMC Avamar Repo for Dinoco Production vDC</
Description>
        <IsEnabled>false</IsEnabled>
        <IsBackupAllowed>false</IsBackupAllowed>
        <IsRestoreAllowed>true</IsRestoreAllowed>
        <PrimaryBytesAllowed>12000000000</PrimaryBytesAllowed>
        <NewBytesAllowedPerDay>2000000000</NewBytesAllowedPerDay>
        <BackupStoreId></BackupStoreId>
        <CloudIdFilter></CloudIdFilter>
        <OrgIdFilter></OrgIdFilter>
        <OrgVdcIdFilter></OrgVdcIdFilter>
        <BackupApplianceReference
            href="https:// ... /EmcBackupService/backupAppliance/1" />
    </BackupRepositoryParams>
</RegisterBackupRepositoryParams>
```

Example response

```
202 Accepted
Content-Type: task+xml

<Task
    href="https://vcloud.example.com/api/task/3f7"
    id="urn:vcloud:task:3f7"
    name="task" type="application/vnd.vmware.vcloud.task+xml"
    status="running"
    operation="Create a new Backup Repository (c99)"
    serviceNamespace="com.emc.vcp.backup">
```

```
    <Details></Details>
    <Organization
        href="https://vcloud.example.com/api/org/a93"
        name="System"
        type="application/vnd.vmware.vcloud.org+xml"/>
    <Owner
        href="urn:vcloud:backupRepository:c99"
        id="c99"
        name="Avamar-Backup-Repository-19"
        type="application/vnd.emc.vcp.backupRepository+xml"/>
    <User
        href="https://vcloud.example.com/api/admin/user/c2f"
        name="administrator"
        type="application/vnd.vmware.admin.user+xml"/>
    <Progress>0</Progress>
    <StartTime>2013-09-04T14:12:43.913-07:00</StartTime>
</Task>
```

Get all backup repositories on an org vDC

Operation
GET /api/admin/extension/vdc/{id}/BackupRepositories

Description
Get all backup repositories on an org vDC

Input parameters
None

Output parameters
Produce media type(s):
BackupRepositoryReferences +xml

Output type:
BackupRepositoryReferences

Example request

```
GET /api/admin/extension/vdc/44/BackupRepositories
```

Example response

```
200 OK
Content-type: BackupRepositoryReferences

<BackupRepositoryReferences type="application/
vnd.emc.vcp.backupRepositoryRefList+xml">
    <BackupRepositoryReference name="Restore-Only Repo for Avamar-2"
id="11" type="application/vnd.emc.vcp.backupRepository+xml"
href="https://vcloud.example.com/api/admin/extension/EmcBackupService/
backupRepository/33"/>
    <BackupRepositoryReference name="Avamar-Backup-Repository-
Primary" id="22" type="application/vnd.emc.vcp.backupRepository+xml"
href="https://vcloud.example.com/api/admin/extension/EmcBackupService/
backupRepository/55"/>
```

Update a backup repository

Operation
UPDATE /api/admin/extension/EmcBackupService/backupRepository/{id}

Description
Update a backup repository.

Input parameters

Consume media type(s):
backupRepository+xml

Input type:
BackupRepository

Output parameters

Produce media type(s):
backupRepository+xml

Output type:
BackupRepositoryType

Example request

```
PUT /api/admin/extension/EmcBackupService/backupRepository/45
Content-Type: BackupRepository +xml
<BackupRepository type="application/vnd.emc.vcp.backupRepository+xml"
id="45" revision="2" name="Avamar-Backup-Repository-Primary">
    <Description>EMC Avamar Repo for Constellation Org vDC</
Description>
    <BackupRepositoryConfigurationSection>
        <IsEnabled>true</IsEnabled>
        <IsBackupAllowed>true</IsBackupAllowed>
        <IsRestoreAllowed>false</IsRestoreAllowed>
        <PrimaryBytesAllowed>99000000000</PrimaryBytesAllowed>
        <NewBytesAllowedPerDay>9900000000</NewBytesAllowedPerDay>
    </BackupRepositoryConfigurationSection>
    <CloudIdFilter></CloudIdFilter>
    <OrgIdFilter></OrgIdFilter>
    <OrgVdcIdFilter></OrgVdcIdFilter>
</BackupRepository>
```

Example response

```
200 OK
Content-Type: backupRepository+xml

<BackupRepository type="application/vnd.emc.vcp.backupRepository+xml"
id="45" revision="3" name=" Avamar-Backup-Repository-Primary">
    <Description>EMC Avamar Repo for Constellation Org vDC</
Description>
    <BackupRepositoryConfigurationSection>
        <IsEnabled>true</IsEnabled>
        <IsBackupAllowed>true</IsBackupAllowed>
        <IsRestoreAllowed>false</IsRestoreAllowed>
        <PrimaryBytesAllowed>99000000000</PrimaryBytesAllowed>
        <NewBytesAllowedPerDay>9900000000</NewBytesAllowedPerDay>

    </BackupRepositoryConfigurationSection>
    <BackupStoreId>1447379232@00:50:56:90:44:F0</BackupStoreId>
    <CloudIdFilter></CloudIdFilter>
    <OrgIdFilter></OrgIdFilter>
    <OrgVdcIdFilter></OrgVdcIdFilter>
    <BackupApplianceReference
    type="backupappliance+xml"
    name="Avamar 2TB - unit A"
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupappliance/22" />
    <Link href="https://vcloud.example.com/api/admin/vdc/12"
rel="down" type="application/vnd.vmware.admin.vdc+xml"/>
    <Link href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRepository/45/ReplicationPolicies" rel="down"
type="ReplicationPolicy+xml"/>
    <Link href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRepository/45/DefaultReplicationPolicy"
rel="down" type="ReplicationPolicy+xml"/>
    <Link href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRepository/45/query" rel="down"
```

```
type="QueryResultList+xml"/>
</BackupRepository>
```

Get a backup repository

Operation
Get /api/admin/extension/EmcBackupService/backupRepository/{id}

Description
Get a backup repository.

Input parameters
None

Output parameters
Produce media type(s):
backupRepository+xml

Output type:
BackupRepositoryType

Example request

```
GET /api/admin/extension/EmcBackupService/backupRepository/22
```

Example response

```
200 OK
Content-Type: backupRepository+xml

<BackupRepository
    name="Avamar-22"
    id="urn:vcloud:backuprepository:22"
        revision=”1.0000”
    type="backuprepository+xml"
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRepository/22">
    <Description>backup repo for Dinoco Production vDC</Description>
    <BackupRepositoryConfigurationSection>
            <IsEnabled>false</IsEnabled>
          <IsBackupAllowed>false</IsBackupAllowed>
            <IsRestoreAllowed>true</IsRestoreAllowed>
            <PrimaryBytesAllowed>12000000000</PrimaryBytesAllowed>
            <NewBytesAllowedPerDay>2000000000</NewBytesAllowedPerDay>
    </BackupRepositoryConfigurationSection>
        <BackupStoreId></BackupStoreId>
        <CloudIdFilter></CloudIdFilter>
        <OrgIdFilter></OrgIdFilter>
        <OrgVdcIdFilter></OrgVdcIdFilter>
    <BackupApplianceReference
        type="backupappliance+xml"
        name="Avamar 2TB - unit A"
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupappliance/22" />
    <Link
        rel="up"
        type="application/vnd.vmware.admin.vdc+xml"
        name="Dinoco Production vdc"
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/vdcRegistration/efc" />
    <Link
        rel="down"
        type="ReplicationPolicy+xml"
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRepository/22/ReplicationPolicies" />
    <Link
        rel="down"
```

```
        type="ReplicationPolicy+xml"
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRepository/22/DefaultReplicationPolicy" />
    <Link
        rel="down"
        type="QueryResultList+xml"
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRepository/22/query" />
</BackupRepository>
```

Delete a backup repository

Operation
DELETE /api/admin/extension/EmcBackupService/backupRepository/{id}

Description
Delete a backup repository. If the backup repository is the active backup repository for the Org vDC, the delete operation fails (response = 409 Conflict).

Input parameters
None

Output parameters
None

Example request

```
DELETE /api/admin/extension/EmcBackupService/backupRepository/22
```

Example response

```
204 No Content
```

Set the active backup repository for an Org vDC

The active backup repository is the backup repository that performs all backups within the Org vDC. Multiple backup repositories can be attached to an Org vDC, but only the active backup repository can engage in a backup. The other backup repositories are restricted to a restore only role with the Org vDC. If no active backup repository is configured, no backups can take place in the Org vDC.

Since the replication policy for vApp backups is associated with the backup repository which holds the backups, it may be appropriate to update the replication policy for vApps needing a non-default replication policy after this operation is performed.

Operation
PUT /api/admin/extension/vdc/{id}/ActiveBackupRepository

Description
Change the active backup repository which performs scheduled and ad-hoc backups within an Org vDC.

Input parameters
Consume media type(s):
backupRepository+xml

Input type:
ReferenceType

Output parameters
None

Example request

```
PUT /api/admin/extension/vdc/44/ActiveBackupRepository
Content-Type: backupRepository+xml

<ReferenceType
    type="backupRepository+xml"
    name="Avamar-Backup-Repository-19"
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRepository/22" />
```

Example response

```
204 No Content
```

Get the active backup repository for an Org vDC

Operation
GET /api/admin/extension/vdc/{id}/ActiveBackupRepository

Description
Retrieve a reference to the active backup repository for an Org vDC.

Input parameters
None

Output parameters
Produce media type(s):
backupRepository+xml

Output type:
ReferenceType

Example request

```
GET /api/admin/extension/vdc/44/ActiveBackupRepository
```

Example response

```
200 OK
Content-Type: backupRepository+xml

<ReferenceType
    name=" Avamar-Backup-Repository-19"
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRepository/22" />
```

Resources available on a Backup Repository

This GET operation return at structure that can be re-submitted in a PUT operation to modify selected aspects of a backup repository's configuration. The items in the BackupRepositorySection are modifiable via a GET PUT cycle. Generally the other content is read-only and fixed at the time of backup repository creation.

Elements of Backup Repository configuration that are fixed at creation of the repository

Table 26 Elements of Backup Repository configuration that are fixed at creation of the repository

Element	Type	Description
BackupStoreId	String	Identifies the storage unit (GSAN or Data Domain) on the appliance that is used to hold all backup inventory in this repository. The allowed BackupStoreIds are returned by the BackupAppliance.
CloudIdFilter	String	This element is specified on a restore only repository that is mounted to allow restores of backup inventory that was originally captured during backup activity that is related to a different cloud than the one associated with the REST API. This typically happens only when backups inventory has been replicated to a remote DR site for purposes of restore to a different cloud. A repository with this element specified can only be used for restores -backups are not allowed.
OrgIdFilter	String	This element is specified on a restore only repository that is mounted to allow restores of backup inventory that was originally captured during backup activity that is related to a different Org than the one associated with the parent Org vDC of the backup repository. This can happen when backups inventory has been replicated to a remote DR site for purposes of restore to a different cloud. This can also happen when an Org is deleted, and it is desired to allow restore of the original Org's backup inventory into a new replacement Org or a different Org. A repository with this element specified can only be used for restores -backups are not allowed.
OrgVdcFilter	String	This element is specified on a restore only repository that is mounted to allow restores of backup inventory that was originally captured during backup activity that is related to a different Org vDC than the one that is the parent Org vDC of the backup repository. This can happen when backup inventory has been replicated to a remote DR site for purposes of restore to a different cloud. This can also happen when an Org vDC is deleted, and it is desired to allow restore of the original Org vDC's backup inventory into a new replacement Org vDC. A repository with this element specified can only be used for restores -backups are not allowed.

Elements of Backup Repository configuration that can be modified after creation

Table 27 Elements of Backup Repository configuration that can be modified after creation

Element	Type	Description
IsEnabled	Boolean	Normally true. Setting to false disables backups, restores, and queries
IsBackupAllowed	Boolean	Normally true. Setting to false disables backups.
IsRestoreAllowed	Boolean	Normally true. Setting to false disables restores.
PrimaryBytesAllowed	Integer	Upper limit on total size (bytes) of all VMs in all vApps, within the Org vDC, that are protected by a backup policy. This value is checked at the completion of each Backup and reported in the Event/Notification stream once per day per Org vDC.
NewBytesAllowedPerDay	Integer	New (after de-duplication) bytes written to a backup appliance during backups are monitored. This configuration setting defines the maximum upper limit of new bytes that are accepted per day. This value is checked at the completion of each Backup and reported in the Event/Notification stream once per day per Org vDC.

Operation
GET /api/admin/extension/EmcBackupService/backupRepository/{id}

Description
Retrieve the representation of a registered backup repository.

Input parameters
None

Output parameters
Produce media type(s):
backupRepository+xml

Output type:
BackupRepositoryType

Example request

```
GET /api/admin/extension/EmcBackupService/backupRepository/22
```

Example response

```
200 OK
Content-Type: backupRepository+xml

<BackupRepository
    name="Avamar-22"
    id="urn:vcloud:backuprepository:22"
        revision=”1.0000”
    type="backuprepository+xml"
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRepository/22">
    <Description>backup repo for Dinoco Production vDC</Description>
```

```
    <BackupRepositoryConfigurationSection>
            <IsEnabled>false</IsEnabled>
          <IsBackupAllowed>false</IsBackupAllowed>
            <IsRestoreAllowed>true</IsRestoreAllowed>
            <PrimaryBytesAllowed>12000000000</PrimaryBytesAllowed>
            <NewBytesAllowedPerDay>2000000000</NewBytesAllowedPerDay>
    </BackupRepositoryConfigurationSection>
        <BackupStoreId></BackupStoreId>
        <CloudIdFilter></CloudIdFilter>
        <OrgIdFilter></OrgIdFilter>
        <OrgVdcIdFilter></OrgVdcIdFilter>
    <BackupApplianceReference
        type="backupappliance+xml"
        name="Avamar 2TB - unit A"
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupappliance/22" />
    <Link
        rel="up"
        type="application/vnd.vmware.admin.vdc+xml"
        name="Dinoco Production vdc"
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/vdcRegistration/efc" />
    <Link
        rel="down"
        type="ReplicationPolicy+xml"
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRepository/22/ReplicationPolicies" />
    <Link
        rel="down"
        type="ReplicationPolicy+xml"
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRepository/22/DefaultReplicationPolicy" />
    <Link
        rel="down"
        type="QueryResultList+xml"
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRepository/22/query" />
</BackupRepository>
```

Backup repository queries

This section includes the following topics.

Get list of virtual datacenters (vDCs) in backup repository

Operation
GET /api/admin/extension/EmcBackupService/backupRepository/{id}/query?type=vdc

Description
Get list of all org virtual datacenters associated with vApp accounts held in the backup repository. This is a read only list and is not bound to specific states. If filter is provided it is applied to the corresponding result set.

Input parameters
None

Output parameters
Produce media type(s):
QueryResultList+xml

Output type:
QueryResultList

Example request

```
GET /api/admin/extension/EmcBackupService/backupRepository/22/query?
type=vdc
GET /api/admin/extension/EmcBackupService/backupRepository/22/query?
type=vdc&vdcname=”Dinoco Accounting”
```

Example response

```
200 OK
Content-Type: QueryResultList+xml

<QueryResultList>
    <VdcRef
        guid="d5443f6b-85e"
        name="Dinoco Production virtual datacenter" />
    <VdcRef
        guid="3f79780c-6b0"
        name="Dinoco Test and Dev virtual datacenter" />
</QueryResultList>
```

Get list of vApp accounts in a backup repository

Operation
GET /api/admin/extension/EmcBackupService/backupRepository/{id}/query?type=vapp&vcloudguid

Description
Get list of all vApp accounts held in the backup repository. This is a read only list and is not bound to specific states. If filter is provided it is applied to the corresponding result set.

Input parameters
None

Output parameters
Produce media type(s):
QueryResultList+xml

Output type:
QueryResultList

Example request

```
GET /api/admin/extension/EmcBackupService/backupRepository/22/query?
type=vapp
GET /api/admin/extension/EmcBackupService/backupRepository/22/query?
type=vapp&vcloudguid
GET /api/admin/extension/EmcBackupService/backupRepository/22/query?
type==vapp&vdcguid=”3419780e-1b3”&ownername=”John Doe”&vappname=”Test
Web Server*”
```

Example response

```
200 OK
Content-Type: QueryResultList+xml

<QueryResultList>
    <VappRef
        guid="d5443f6b-85e"
        name="Ecommerce web farm" />
    <VappRef
        guid="3f79780c-6b0"
        name="HR database" />
</QueryResultList>
```

Get list of vApp backups in a backup repository

Operation
GET /api/admin/extension/EmcBackupService/backupRepository/{id}/query?type=backup&vappguid={guid}

Description
Get list of all backups held a specific vApp account in the backup repository. This is a read only list. Links are included for each backup to enable retrieval of vApp configuration and vApp Metadata.

Input parameters
None

Output parameters
Produce media type(s):
QueryResultList+xml

Output type:
QueryResultList

Example request

```
GET /api/admin/extension/EmcBackupService/backupRepository/22/query?
type=backup&vappguid=4be
```

Example response

```
200 OK
Content-Type: QueryResultList+xml

<QueryResultList
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRepository/22/query?type=backup&vappguid=4be">
    <BackupRef
        date="2013-09-04T08:28:01 GMT"
        size="10737521664"
        seqnum="80"
        retention="2013-11-03T08:00:00 GMT"
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRepository/22/query?
type=backup&vappguid=4be&seqnum=80">
    <BackupRef
        date="2013-09-03T08:18:41 GMT"
        size="10737521664"
        seqnum="77"
        retention="2013-11-02T08:00:00 GMT"
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRepository/22/query?
type=backup&vappguid=4be&seqnum=77">
    <BackupRef
        date="2013-09-02T08:05:05 GMT"
        size="10737521664"
        seqnum="74"
        retention="2013-11-01T08:00:00 GMT"
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRepository/22/query?
type=backup&vappguid=4be&seqnum=74">
</QueryResultList>
```

Get list of all backups of the orphaned VMs

Operation
GET /api/admin/extension/EmcBackupService/backupRepository/*{{repo-id}}*/query?type=backup&sync=true&vminstanceuuid=*{{vminstanceuuid}}*

Header: **vcp-version=3.0**

Description

This operation previously accepted the parameter `vappuuid`. It now also accepts the parameter `vminstanceuuid`, which lists all backups of that VM instance.

Input parameters

`vminstanceuuid`

Output parameters

Produce media type(s):
application/xml

Output type:
List of QueryResultList<BackupRef>(status code: 200)

Example request

```
GET /api/admin/extension/EmcBackupService/backupRepository/
eecc6b80-51d4-4b9b-ae90-6e2432c96fe8/query?
type=backup&sync=true&vminstanceuuid=5019bb46-7272-33b2-7d1c-
c919c1e363ae
```

Example response

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<QueryResultList
    id="f184a9d0-3ca8-4e95-844c-9db83f3515be"
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRepository/eecc6b80-51d4-4b9b-
ae90-6e2432c96fe8/query?
type=q&q=f184a9d0-3ca8-4e95-844c-9db83f3515be&i=0&n=2147483647"
    when="2018-08-10T15:36:11Z"
    expires="2018-08-11T15:36:11Z"
    total="12">
    <BackupRef
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRepository/eecc6b80-51d4-4b9b-
ae90-6e2432c96fe8/backups?
vcloudguid=5ecc4f53-81c4-4974-97e5-321849bc0a50&orgguid=369de5ae-
a1f9-4c75-9281-3b48332d2d04&vdcguid=ad975717-
cbd1-445a-8bb6-764d2781d7a6&seqnum=12"
        date="2018-08-03T09:53:18.000Z"
        size="17182095360"
        type="adhoc"
        seqnum="12"
        retention="2018-10-02T09:51:43.000Z">
    <Link
        rel="down"
        type="vappconfigcollection+xml"
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRepository/eecc6b80-51d4-4b9b-
ae90-6e2432c96fe8/backups?
vcloudguid=5ecc4f53-81c4-4974-97e5-321849bc0a50&orgguid=369de5ae-
a1f9-4c75-9281-3b48332d2d04&vdcguid=ad975717-
cbd1-445a-8bb6-764d2781d7a6&seqnum=12&content=vappconfigcollection"
        name="VappConfigCollection"/>
    <Link
        rel="down"
        type="backupmetadatacollection+xml"
        href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/backupRepository/eecc6b80-51d4-4b9b-
ae90-6e2432c96fe8/backups?
vcloudguid=5ecc4f53-81c4-4974-97e5-321849bc0a50&orgguid=369de5ae-
a1f9-4c75-9281-3b48332d2d04&vdcguid=ad975717-
cbd1-445a-8bb6-764d2781d7a6&seqnum=12&content=backupmetadatacollection
"
        name="BackupMetadataCollection"/>
```

```
    </BackupRef>
</QueryResultList>
```

Get the historical vApp configuration from a specified vApp backup in the backup repository

Operation
GET /api/admin/extension/ EmcBackupService/backupRepository/{id}/backups?vcloudguid={guid}&orgguid={guid}&vappguid={guid}&seqnum={id}&content=vappconfigcollection

Description
vCloud Director maintains detailed configuration settings for a vApp and the VMs it contains. These configurations settings are captured during the backup process. This operation gets a list of the vApp configuration settings that were recorded in a vApp backup during the backup process. The VMware vCloud REST API is used to capture this information during the backup process, and the information is retained in the same format as published in the vCloud API.

During a Vapp's lifecycle, a vApp's configuration is editable using the standard vCloud REST API. If the vApp still exists, it is possible that the configuration recorded in the backup is different from the current configuration.

The information returned in this call can be used for purposes including:

- Reporting whether a vApp configuration has changed.
- Reporting a list of the differences between the configuration at the time of backup, and the current configuration. (This requires use of the vCloud API to collect the current configuration, and a "diff" process that must be implemented by the calling process.)
- Reporting the vApp configuration at the time of backup, for a vApp that has been deleted.
- Collecting the original vApp configuration for use in post processing after a restore of the backup to a newly created vApp. In a restore to a newly created vApp, certain configuration aspects such as MAC addresses and network connections could be problematic if restored. The restore process does not restore any configuration aspects that could create network conflicts. An administrator can utilze this operation to examine the original configuration in order to intelligently derive alternate configuration settings.

The reference for this operation would be obtained by using the operation:

GET /api/admin/extension/EmcBackupService/backupRepository/{id}/query?type=backup&vappguid={guid}

This operation is restricted to SYSTEM administrators.

Input parameters
None

Output parameters
Produce media type(s):
QueryResultList+xml

Output type:
QueryResultList

Example request

```
GET /api/admin/extension/EmcBackupService/backupRepository/22/backups?
vcloudguid=3f79780c-6b0&orgguid=5f69730d-640&vappguid=1e797301-78a&seq
num=29&content=vappconfigcollection
```

Example response

```
GET /api/admin/extension/EmcBackupService/backupSchedule/125
```

Get the historical vApp Metadata from a specified vApp backup in the backup repository

Operation
GET /api/admin/extension/ EmcBackupService/backupRepository/{id}/backups?
GET /api/admin/extension/ EmcBackupService/backupRepository/{id}/backups?

Description
The vCloud Director API provides a general-purpose facility for associating user-defined metadata with vApps and the VMs it contains. This metadata is captured during the backup process. This operation gets a list of the vApp and VM metadata that was recorded in a vApp backup during the backup process. The VMware vCloud REST API is used to capture this information during the backup process, and the information is retained in the same format as published in the vCloud API.

During a Vapp's lifecycle, a vApp's metadata is editable using the standard vCloud REST API. If the vApp still exists, it is possible that the metadata recorded in the backup is different from the current configuration.

The metadata returned by this operation includes PRIVATE SYSTEM metadata that is not accessible to those other that SYSTEM administrators, via the vCloud REST API. The recovery process continues to respect this restriction and, as a result, this operation is supported on for SYSTEM administrators.

Metadata will be automatically restored during the vApp restore process, so use of this operation is not required to recover metadata during a vApp restore.

Input parameters
None

Output parameters
Produce media type(s):
backupmetadatacollection+xml

Output type:
BackupMetadataCollection

Example request

```
GET /api/admin/extension/ EmcBackupService/backupRepository/22/
backups?
vcloudguid=3f79780c-6b0&orgguid=5f69730d-640&vappguid=1e797301-78a&seq
num=29&content=backupmetadatacollection
```

Example response

```
200 OK
Content-Type: backupmetadatacollection+xml

<BackupMetadataCollection>
    <BackupMetadataItem
        source="vApp/vapp-3a79c320-ec75-4894-a64c-647aa06e1b69"
        type="vappmetadata">
        <Metadata
            xmlns="http://www.vmware.com/vcloud/v1.5"
            type="application/vnd.vmware.vcloud.metadata+xml"
```

```
            href="https://10.25.85.50/api/vApp/vapp-3a79c320-
ec75-4894-a64c-647aa06e1b69/metadata"
            xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
            xsi:schemaLocation="http://www.vmware.com/vcloud/v1.5
http://10.25.85.50/api/v1.5/schema/master.xsd">
            <Link rel="up" type="application/vnd.vmware.vcloud.vApp
+xml"
                href="https://10.25.85.50/api/vApp/vapp-3a79c320-
ec75-4894-a64c-647aa06e1b69"/>
            <Link rel="add"
                type="application/vnd.vmware.vcloud.metadata+xml"
                href="https://10.25.85.50/api/vApp/vapp-3a79c320-
ec75-4894-a64c-647aa06e1b69/metadata"/>
            <MetadataEntry
                type="application/vnd.vmware.vcloud.metadata.value
+xml"
                href="https://10.25.85.50/api/vApp/vapp-3a79c320-
ec75-4894-a64c-647aa06e1b69/metadata/foo2">
                <Link rel="up" type="application/
vnd.vmware.vcloud.metadata+xml"
                    href="https://10.25.85.50/api/vApp/vapp-3a79c320-
ec75-4894-a64c-647aa06e1b69/metadata"/>
                <Link rel="edit" type="application/
vnd.vmware.vcloud.metadata.value+xml"
                    href="https://10.25.85.50/api/vApp/vapp-3a79c320-
ec75-4894-a64c-647aa06e1b69/metadata/foo2"/>
                <Link rel="remove"
                    href="https://10.25.85.50/api/vApp/vapp-3a79c320-
ec75-4894-a64c-647aa06e1b69/metadata/foo2"/>
                <Key>foo2</Key>
                <TypedValue xsi:type="MetadataStringValue">
                    <Value>bar2</Value>
                </TypedValue>
            </MetadataEntry>
            <MetadataEntry
                type="application/vnd.vmware.vcloud.metadata.value
+xml"                href="https://10.25.85.50/api/vApp/
vapp-3a79c320-ec75-4894-a64c-647aa06e1b69/metadata/
foo">                ...
                <Key>foo</Key>
                <TypedValue xsi:type="MetadataStringValue">
                    <Value>bar</Value>
                </TypedValue>
            </MetadataEntry>
        </Metadata>
    </BackupMetadataItem>
    <BackupMetadataItem
        source="vApp/vm-208dead4-69af-44b8-8bd4-6123b61af127"
        type="vmmetadata">

        <Metadata xmlns="http://www.vmware.com/vcloud/v1.5"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
type="application/vnd.vmware.vcloud.metadata+xml"
             href="https://10.25.85.50/api/vApp/
vm-208dead4-69af-44b8-8bd4-6123b61af127/metadata"
            xsi:schemaLocation="http://www.vmware.com/vcloud/v1.5
http://10.25.85.50/api/v1.5/schema/master.xsd">
            ...
            <MetadataEntry type="application/
vnd.vmware.vcloud.metadata.value+xml" href="https://10.25.85.50/api/
vApp/vm-208dead4-69af-44b8-8bd4-6123b61af127/metadata/text">
                ...
                <Key>text</Key>
                <TypedValue xsi:type="MetadataStringValue">
                    <Value>text</Value>
                </TypedValue>
            </MetadataEntry>
            <MetadataEntry type="application/
vnd.vmware.vcloud.metadata.value+xml" href="https://10.25.85.50/api/
vApp/vm-208dead4-69af-44b8-8bd4-6123b61af127/metadata/readonly">
```

```
                ...
                <Key>readonly</Key>
                <TypedValue xsi:type="MetadataStringValue">
                    <Value>readonly</Value>
                </TypedValue>
            </MetadataEntry>
            <MetadataEntry type="application/
vnd.vmware.vcloud.metadata.value+xml" href="https://10.25.85.50/api/
vApp/vm-208dead4-69af-44b8-8bd4-6123b61af127/metadata/SYSTEM/hidden">
                ...
                <Domain visibility="PRIVATE">SYSTEM</Domain>
                <Key>hidden</Key>
                <TypedValue xsi:type="MetadataStringValue">
                    <Value>hidden</Value>
                </TypedValue>
            </MetadataEntry>
            <MetadataEntry type="application/
vnd.vmware.vcloud.metadata.value+xml" href="https://10.25.85.50/api/
vApp/vm-208dead4-69af-44b8-8bd4-6123b61af127/metadata/fortytwo">
                ...
                <Key>fortytwo</Key>
                <TypedValue xsi:type="MetadataNumberValue">
                    <Value>42</Value>
                </TypedValue>
            </MetadataEntry>
            <MetadataEntry type="application/
vnd.vmware.vcloud.metadata.value+xml" href="https://10.25.85.50/api/
vApp/vm-208dead4-69af-44b8-8bd4-6123b61af127/metadata/datetime">
                ...
                <Key>datetime</Key>
                <TypedValue xsi:type="MetadataDateTimeValue">
                    <Value>2013-04-30T16:18:59.000-04:00</Value>
                </TypedValue>
            </MetadataEntry>
            <MetadataEntry type="application/
vnd.vmware.vcloud.metadata.value+xml" href="https://10.25.85.50/api/
vApp/vm-208dead4-69af-44b8-8bd4-6123b61af127/metadata/yesno">
                ...
                <Key>yesno</Key>
                <TypedValue xsi:type="MetadataBooleanValue">
                    <Value>true</Value>
                </TypedValue>
            </MetadataEntry>
        </Metadata>
    </BackupMetadataItem>
</BackupMetadataCollection>
```

Get list of vApp owners in backup repository

Operation
GET /api/admin/extension/EmcBackupService/backupRepository/{id}/query?type=owner

Description
Get list of all owners associated with vApps in the backup repository. This is a read only list and is not bound to specific states. If filter is provided it is applied to the corresponding result set.

Input parameters
None

Output parameters
Produce media type(s):
QueryResultList+xml

Output type:
QueryResultList

Example request

```
GET /api/admin/extension/EmcBackupService/backupRepository/22/query?
type=owner
GET /api/admin/extension/EmcBackupService/backupRepository/22/query?
type=owner&ownername=”John*”
```

Example response

```
200 OK
Content-Type: QueryResultList+xml

<QueryResultList>
    <OwnerRef name="Emily Mortimer" />
    <OwnerRef name="John Ratzenberger" />
</QueryResultList>
```

Get an activity summary for a backup repository

Operation

GET /api/admin/extension/EmcBackupService/backupRepository/{id}/query?type=activit

Description

Get list of recent and current backup and restore jobs in the backup repository. This is a read only list and is not bound to specific states. If filter is provided it is applied to the corresponding result set.

Input parameters

None

Output parameters

Produce media type(s):
QueryResultList+xml

Output type:
QueryResultList

Example request

```
GET /api/admin/extension/EmcBackupService/backupRepository/22/query?
type=activity
```

Example response

```
200 OK
Content-Type: QueryResultList+xml

<QueryResultList>
    <ActivityRef
        type="backup"
        state="running"
        startedby="schedule"
        schedulename="Gold SLA Pacific timezone"
        retentionname="Gold SLA"
        progress="70"
        primarybytesprocessed="123000000"
        newbytes="7402847"
        errors="0"
        warnings="1"
        starttime="2012-011-02T13:09:00"
        effectiveretention="2019-011-03T13:00:00"
        vcloudguid="1272728-939"
        vcloudname="Los Angeles vCloud"
        orgguid="8383831-931"
        orgname="Dinoco"
        vappguid="d5443f6b-85e"
        vappname="HR database"
```

```
        vappownername="John Doe" />
    <ActivityRef
        type="backup"
        state="completed"
        status="success"
        startedby="adhoc"
        schedulename=""
        retentionname="Gold SLA"
        progress="100"
        primarybytesprocessed="123000000"
        newbytes="7402847"
        errors="0"
        warnings="0"
        starttime="2012-011-02T13:09:00"
        endtime="2012-011-02T13:09:02"
        effectiveretention="2019-011-03T13:00:00"
        vcloudguid="1272728-939"
        vcloudname="Los Angeles vCloud"
        orgguid="8383831-931"
        orgname="Dinoco"
        vappguid="d5313f6b-15a"
        vappname="QA web server" />
</QueryResultList>
```

Get a health and capacity summary for a backup repository

Operation

GET /api/admin/extension/EmcBackupService/backupRepository/*{{id}}*/query?type=repositorystate

Description

Get list of all health and capacity metrics for the backup repository. This is a read only list and is not bound to specific states. If filter is provided it is applied to the corresponding result set.

Input parameters

None

Output parameters

Produce media type(s):
QueryResultList+xml

Output type:
QueryResultList

Example request

```
GET /api/admin/extension/EmcBackupService/backupRepository/22/query?
type=repositorystate
```

Example response

```
200 OK
Content-Type: QueryResultList+xml

<QueryResultList
    id="1084b57d-1661-444c-a061-0122a2c62d0f"
    href="https://10.6.246.107/api/admin/extension/EmcBackupService/
backupRepository/122cb51c-c63d-422f-baf4-93701541b43e/query?
type=q&q=1084b57d-1661-444c-a061-0122a2c62d0f&i=0&n=10"
    when="2013-11-07T00:18:09Z"
    total="1">
    <RepositoryStateRef
        allocatedsize="15000000000"
        usedbytes="12000000000"
        state="Full Access"

maintwindow="1970-01-02T04:00:00.000Z-1970-01-02T04:00:00.000Z"
```

```
      lastcheckpoint="2013-10-30T22:45:02.000Z" />
</QueryResultList>
```

Replication Policy

A replication policy represents a specific configuration controlling the replication of backups from a backup repository to an alternate local or remote backup appliance.

A replication policy is optional. It is possible to have a backup repository that has no replication policy, in which case no backups are replicated.

It is possible to have a backup repository with multiple replication policies which can be useful to configure multiple replication destinations, or multiple replication schedules.

A single replication policy can be configured as the default replication policy for the backup repository. If a default replication policy is configured, this default replication policy applies at any vApps that do not explicitly specify a policy. If no default replication policy is specified, any vApp that does not explicitly specify a replication policy will not be replicated.

Replication Policy elements

Table 28 Replication Policy elements

Element	Type	Description
DestinationAccountName	String	Account name at destination
DestinationAddress	String	Hostname or IP of destination.
DestinationPassword	String	Password that is associated with DestinationAccountName
Description	String	
ByteCountCap	Integer	Maximum bytes allowed per replication
BandwidthLimit	Integer	Maximum bandwidth to be used during a single replication (bytes/sec)
IsReplicationEncrypted	Bool	
RetentionOverrideEnabled	Bool	If false, retention at destination is same as source
RetentionOverride	String (ISO 8610 format duration)	Set retention period to this value if RetentionOverrideEnabled is true
IsEnabled	Bool	True to enable replication policy
ReplicationSchedule		See schedule definition for backup policies
MaximumBackupsPerAccount	Integer	If 0, all backups in inventory are replicated, otherwise only the most recent (number indicated) backups are replicated
MaximumAgeOfBackup	String (ISO 8610 format duration)	Backups older than this duration is not replicated, if filter is enabled, otherwise ignored and can be omitted

Table 28 Replication Policy elements (continued)

Element	Type	Description
IsMaximumAgeOfBackupFilterEnabled	Bool	If true, older backups are not replicated, based on the MaximumAgeOfBackup setting

Add a replication policy to a backup repository

Operation
POST /api/admin/extension/EmcBackupService/backupRepository/{id}/ReplicationPolicies

Description
Create a replication policy.

Input parameters
Consume media type(s):
replicationPolicyParams+xml

Input type:
ReplicationPolicyParamsType

Output parameters
Produce media type(s):
replicationPolicy+xml

Output type:
ReplicationPolicyType

Example request

```
POST /api/admin/extension/EmcBackupService/backupRepository/22/
ReplicationPolicies
Content-Type: replicationPolicyParams+xml

<ReplicationPolicyParams>
    <ReplicationPolicy name="Los Angeles to Dallas backup replication
policy">
        <DestinationAccountName>LA-Avamar-Replicator</
DestinationAccountName>
        <DestinationAddress>avamar5.dalls.dinoco.com</
DestinationAddress>
        <DestinationPassword>MyPassword123</DestinationPassword>
        <Description>Pacific Gold service replication</Description>
        <ByteCountCap>1000000</ByteCountCap>
        <BandwidthLimit>768000</BandwidthLimit>
        <IsReplicationEncrypted> false</IsReplicationEncrypted>
        <RetentionOverrideEnabled>true</RetentionOverrideEnabled>
        <RetentionOverride>P7D</RetentionOverride>
        <IsEnabled>true</IsEnabled>
        <ReplicationSchedule>
            <NativeTimezone>America/Los_Angeles</NativeTimezone>

<ActivationInterval>2007-03-01T13:00:00/2008-05-11T15:30:00</
ActivationInterval>
            <Description>Pacific Gold service daily schedule</
Description>
            <ReplicationScheduleType>DailyRepeat</
ReplicationScheduleType>
            <StartHours>1,6,17</StartHours>
            <ReplicationWindowDuration>PT4H</
ReplicationWindowDuration>
```

```
        </ReplicationSchedule>
             <MaximumBackupsPerAccount>0</MaximumBackupsPerAccount>
             <MaximumAgeOfBackup>P7D</MaximumAgeOfBackup>
             <IsMaximumAgeOfBackupFilterEnabled>true</
IsMaximumAgeOfBackupFilterEnabled>
       </ReplicationPolicy>
</ReplicationPolicyParams>
```

Example response

```
201 Created
Content-Type: replicationPolicy+xml

<ReplicationPolicy
    name="Los Angeles to Dallas backup replication policy"
    revision=”1.0000”
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/replicationPolicy/56">
    <DestinationAccountName>LA-Avamar-Replicator</
DestinationAccountName>
    <DestinationAddress>avamar5.dalls.dinoco.com</DestinationAddress>
    <DestinationPassword>MyPassword123</DestinationPassword>
    <Description>Pacific Gold service replication</Description>
    <ByteCountCap>1000000</ByteCountCap>
    <BandwidthLimit>768000</BandwidthLimit>
    <IsReplicationEncrypted>false</IsReplicationEncrypted>
    <RetentionOverrideEnabled>true</RetentionOverrideEnabled>
    <RetentionOverride>P7D</RetentionOverride>
    <IsEnabled>true</IsEnabled>
    <ReplicationSchedule>
        <NativeTimezone>America/Los_Angeles</NativeTimezone>
        <ActivationInterval>2007-03-01T13:00:00/2008-05-11T15:30:00</
ActivationInterval>
        <Description>Pacific Gold service daily schedule</Description>
        <ReplicationScheduleType>DailyRepeat</ReplicationScheduleType>
        <StartHours>1,6,17</StartHours>
        <ReplicationWindowDuration>PT4H</ReplicationWindowDuration>
    </ReplicationSchedule>
    <MaximumBackupsPerAccount>0</MaximumBackupsPerAccount>
    <MaximumAgeOfBackup>P7D</MaximumAgeOfBackup>
    <IsMaximumAgeOfBackupFilterEnabled>true</
IsMaximumAgeOfBackupFilterEnabled>
</ReplicationPolicy>
```

Get all replication policies in a backup repository

Operation

GET /api/admin/extension/EmcBackupService/backupRepository/{id}/ReplicationPolicies

Description

Get all replication policies.

Input parameters

None

Output parameters

Produce media type(s):
replicationPolicyRefList+xml

Output type:
ReplicationPolicyRefListType

Example request

```
GET /api/admin/extension/EmcBackupService/backupRepository/22/
ReplicationPolicies
```

Example response

```
200 OK
Content-Type: ReplicationPolicyRefListType

<ReplicationPolicyRefList>
    <ReplicationPolicyRef id="1f" href="https://
vcloud.example.com/api/admin/extension/EmcBackupService/
replicationPolicy/1f" name=" Replication from AVE-CA to AVE-AZ"/>
    <ReplicationPolicyRef id="50" href="https://
vcloud.example.com/api/admin/extension/EmcBackupService/
replicationPolicy/50" name="Replication from AVE-CA to AVE-NY"/>
</ReplicationPolicyRefList>
```

Update a replication policy

Operation

PUT /api/admin/extension/EmcBackupService/replicationPolicy/{id}

Description

Update a replication policy. The revision attribute is mandatory. Other elements are optional if they are not changed. If the revision attribute that is passed in the input parameters does not match the current state of the replication policy, the operation fails (response = 409 Conflict). The revision attribute in the replication policy is automatically incremented and returned in the output parameters after a successful update.

Input parameters

Consume media type(s):
replicationPolicy+xml

Input type:
ReplicationPolicyType

Output parameters

Produce media type(s):
replicationPolicy+xml

Output type:
ReplicationPolicyType

Example request

```
PUT /api/admin/extension/EmcBackupService/replicationPolicy/56
Content-Type: replicationPolicy+xml

<ReplicationPolicy
    name="Los Angeles to Dallas backup replication policy"
    revision=”1.0000”
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/replicationPolicy/56">
    <DestinationAccountName>LA-Avamar-Replicator</
DestinationAccountName>
    <DestinationAddress>avamar5.dalls.dinoco.com</DestinationAddress>
    <DestinationPassword>MyPassword123</DestinationPassword>
    <Description>Pacific Gold service replication</Description>
    <ByteCountCap>1000000</ByteCountCap>
    <BandwidthLimit>900000</BandwidthLimit>
    <IsReplicationEncrypted>Hi</IsReplicationEncrypted>
    <RetentionOverrideEnabled>true</RetentionOverrideEnabled>
    <RetentionOverride>P7D</RetentionOverride>
    <IsScheduleEnabled>true</IsScheduleEnabled>
    <ReplicationSchedule>
        <NativeTimezone>America/Los_Angeles</NativeTimezone>
        <ActivationInterval>2007-03-01T13:00:00/2008-05-11T15:30:00</
ActivationInterval>
```

```
        <Description>Pacific Gold service daily schedule</Description>
        <ReplicationScheduleType>DailyRepeat</ReplicationScheduleType>
        <StartHours>1,6,17</StartHours>
        <ReplicationWindowDuration>PT4H</ReplicationWindowDuration>
    </ReplicationSchedule>
    <MaximumBackupsPerAccount>0</MaximumBackupsPerAccount>
    <MaximumAgeOfBackup>P7D</MaximumAgeOfBackup>
    <IsMaximumAgeOfBackupFilterEnabled>true</
IsMaximumAgeOfBackupFilterEnabled>
</ReplicationPolicy>
```

Example response

```
202 Accepted
Content-Type: replicationPolicy+xml

<ReplicationPolicy
    name="Los Angeles to Dallas backup replication policy"
    revision=”1.0000”
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/replicationPolicy/56">
    <DestinationAccountName>LA-Avamar-Replicator</
DestinationAccountName>
    <DestinationAddress>avamar5.dalls.dinoco.com</DestinationAddress>
    <Description>Pacific Gold service replication</Description>
    <ByteCountCap>1000000</ByteCountCap>
    <BandwidthLimit>900000</BandwidthLimit>
    <IsReplicationEncrypted>Hi</IsReplicationEncrypted>
    <RetentionOverrideEnabled>true</RetentionOverrideEnabled>
    <RetentionOverride>P7D</RetentionOverride>
    <IsScheduleEnabled>true</IsScheduleEnabled>
    <ReplicationSchedule>
        <NativeTimezone>America/Los_Angeles</NativeTimezone>
        <ActivationInterval>2007-03-01T13:00:00/2008-05-11T15:30:00</
ActivationInterval>
        <Description>Pacific Gold service daily schedule</Description>
        <ReplicationScheduleType>DailyRepeat</ReplicationScheduleType>
        <StartHours>1,6,17</StartHours>
        <ReplicationWindowDuration>PT4H</ReplicationWindowDuration>
    </ReplicationSchedule>
    <MaximumBackupsPerAccount>0</MaximumBackupsPerAccount>
    <MaximumAgeOfBackup>P7D</MaximumAgeOfBackup>
    <IsMaximumAgeOfBackupFilterEnabled>true</
IsMaximumAgeOfBackupFilterEnabled>
</ReplicationPolicy>
```

Get a replication policy

Operation
GET /api/admin/extension/EmcBackupService/replicationPolicy/{id}

Description
Get a replication policy.

Input parameters
None

Output parameters
Produce media type(s):
replicationPolicy+xml

Output type:
ReplicationPolicyType

Example request

```
GET /api/admin/extension/EmcBackupService/replicationPolicy/56
```

Example response

```
200 OK
Content-Type: replicationPolicy+xml

<ReplicationPolicy
    id=56
    name="Los Angeles to Dallas backup replication policy"
    revision=”1”
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/replicationPolicy/56">
    <DestinationAccountName>replUser</DestinationAccountName>
    <DestinationAddress>avamar5.dalls.dinoco.com</DestinationAddress>
    <Description>Pacific Gold service replication</Description>
    <ByteCountCap>1000000</ByteCountCap>
    <BandwidthLimit>900000</BandwidthLimit>
    <IsReplicationEncrypted>true</IsReplicationEncrypted>
    <RetentionOverrideEnabled>true</RetentionOverrideEnabled>
    <RetentionOverride>P7D</RetentionOverride>
    <IsEnabled>true</IsScheduleEnabled>
    <ReplicationSchedule>
        <NativeTimezone>America/Los_Angeles</NativeTimezone>
        <ActivationInterval>2007-03-01T13:00:00/2008-05-11T15:30:00</
ActivationInterval>
        <Description>Pacific Gold service daily schedule</Description>
        <ReplicationScheduleType>DailyRepeat</ReplicationScheduleType>
        <StartHours>1,6,17</StartHours>
        <ReplicationWindowDuration>PT4H</ReplicationWindowDuration>
        <StartDOWs></StartDOWs>
        <StartTime></StartTime>
        <EndTime></EndTime>
        <WeekOfMonth>0</WeekOfMonth>
        <DayOfWeek>0</DayOfWeek>
        <DayOfMonth>0</DayOfMonth>
    </ReplicationSchedule>
    <MaximumBackupsPerAccount>0</MaximumBackupsPerAccount>
    <MaximumAgeOfBackup>P7D</MaximumAgeOfBackup>
    <IsMaximumAgeOfBackupFilterEnabled>true</
IsMaximumAgeOfBackupFilterEnabled>
</ReplicationPolicy>
```

Delete a replication policy

Operation
DELETE /api/admin/extension/EmcBackupService/replicationPolicy/{id}

Description
Delete a replication policy. If the replication policy is the default backup policy for a backup repository, or if the replication policy is explicitly selected as an over-ride replication policy for any vApp in the Org vDC, the delete operation fails (response = 409 Conflict).

Input parameters
None

Output parameters
None

Example request

```
DELETE /api/admin/extension/EmcBackupService/replicationPolicy/56
```

Example response

```
204 No Content
```

Set the default replication policy for vApps in a backup repository

Operation
PUT /api/admin/extension/EmcBackupService/backupRepository/{id}/DefaultReplicationPolicy

Description
Change the default replication policy for all vApp accounts in a backup repository. The replication policy is specified by reference. If an empty ReferenceType is specified, the default replication policy is removed, which means that no replication of vApp backups is the default policy for the backup repository.

Input parameters
Consume media type(s):
replicationPolicy+xml

Input type:
ReferenceType

Output parameters
None

Example request

```
PUT /api/admin/extension/EmcBackupService/backupRepository/22/
DefaultReplicationPolicy
Content-Type: replicationPolicy+xml

<ReferenceType
    type="replicationPolicy+xml"
    href="https://vcloud.example.com/api/admin/extension/
EmcBackupService/replicationPolicy/56" />
```

Example response

```
204 No Content
```

Get the default replication policy for vApps in a backup repository

Operation
GET /api/admin/extension/EmcBackupService/backupRepository/{id}/DefaultReplicationPolicy

Description
Get the default replication policy for all vApp accounts in a backup repository.

Input parameters
None

Output parameters
Consume media type(s):
replicationPolicy+xml

Output type:
ReferenceType

Example request

```
GET /api/admin/extension/EmcBackupService/backupRepository/22/
DefaultReplicationPolicy
```

Example response

```
<ReferenceType id="11" href="https://vcloud.example.com/api/admin/
extension/EmcBackupService/replicationPolicy/11" name="Replication
from AVAMAR-1 to AVAMAR-2"/>
```

Select an explicit non-default replication policy for a vApp

Operation
PUT /api/admin/extension/EmcBackupService/replicationPolicy/{id}/attachedVapps

Description
Replace a vApp's existing replication policy, which could be either an explicit or default replication policy, with a different replication policy. This operation is only valid when applied to a replication policy associated with the active backup repository. If this operation is tried on a replication policy that is associated with a backup repository other than the active backup repository for the Org vDC holding the vApp, the operation fails (400 Bad Request).

Input parameters
Consume media type(s):
application/vnd.vmware.vcloud.vApp+xml

Input type:
ReferenceType

Output parameters
None

Example request

```
PUT /api/admin/extension/EmcBackupService/replicationPolicy/22/
attachedVapps
Content-Type: application/vnd.vmware.vcloud.vApp+xml

<ReferenceType
    type="application/vnd.vmware.vcloud.vApp+xml"
    href="https://vcloud.example.com/api/vApp/vapp-7" />
```

Example response

```
204 No Content
```

Get vApps attached to a replication policy

Operation
GET /api/admin/extension/EmcBackupService/replicationPolicy/{id}/attachedVapps

Description
Get vApps attached to a replication policy.

Input parameters
None

Output parameters
Consume media type(s):
vAppefList+xml

Output type:
VappRefListType

Example request

```
GET /api/admin/extension/EmcBackupService/replicationPolicy/22/
attachedVapps
```

Example response

```
200 OK
Content-Type: VAppRefListType

<VappRefList>
    <VappRef id="32" href="https://vcloud.example.com/api/vApp/
vapp-32" name="vApp-1"/>
    <VappRef id="33" href="https://vcloud.example.com/api/vApp/
vapp-33" name="vApp-2"/>
</VappRefList>
```

Reset replication policy for vApp to repository default

Operation
PUT /api/admin/extension/EmcBackupService/backupRepository/{id}/
DefaultReplicationPolicy/attachedVapps

Description
Remove a vApp's existing replication policy, resulting in reversion to the default replication policy for the active backup repository for the vDC which hosts the vApp.

Input parameters
Consume media type(s):
application/vnd.vmware.vcloud.vApp+xml

Output type:
ReferenceType

Output parameters
None

Example request

```
PUT /api/admin/extension/EmcBackupService/backupRepository/22/
DefaultReplicationPolicy/attachedVapps
Content-Type: application/vnd.vmware.vcloud.vApp+xml

<ReferenceType
    type="application/vnd.vmware.vcloud.vApp+xml"
    href="https://vcloud.example.com/api/vApp/vapp-7" />
```

Example response

```
GET /api/admin/extension/EmcBackupService/backupSchedule/125
```

Get vApps attached to a repository default replication policy

Operation
GET /api/admin/extension/EmcBackupService/backupRepository/{id}/
DefaultReplicationPolicy/attachedVapps

Description
Get vApps attached to the default replication policy for the active backup repository for the vDC which hosts the vApps.

Input parameters
None

Output parameters
Consume media type(s):
vAppefList+xml

Output type:
VappRefListType

Example request

```
GET /api/admin/extension/EmcBackupService/backupRepository/22/
DefaultReplicationPolicy/attachedVapps
```

Example response

```
200 OK
Content-Type: VAppRefListType

<VappRefList href="/api/admin/extension/EmcBackupService/
backupRepository/12/DefaultReplicationPoicy/attachedVapps">
   <VappRef id="32" href="https://vcloud.example.com/api/vApp/
vapp-32" name="vApp-1"/>
    <VappRef id="33" href="https://vcloud.example.com/api/vApp/
vapp-33" name="vApp-2"/>
</VappRefList>
```

Queue a request for an ad-hoc replication

Operation
POST /api/admin/extension/EmcBackupService/replicationPolicy/{id}

Description
Initiate a request for an ad-hoc replication of one or more vApp accounts, based on the policy definition of a pre-existing replication policy. This operation takes a list of vApps. The listed vApps must be associated with same Org vDC associated with the replication policy.

The schedule portion of the replication policy is ignored by this operation, and the replication is queued for immediate initiation as resources allow.

A replication is usually a long running activity. This operation returns a vCloud task reference which can be used to monitor or cancel the replication.

If the objective is to replicate all vApps associated with a replication policy, a GET on ../EmcBackupService/backupRepository/{id}/DefaultReplicationPolicy/attachedVapps returns a list of vApps which can be submitted to the POST operation.

Input parameters
Consume media type(s):
application/vnd.vmware.vcloud.vAppRefList+xml

Input type:
ReferenceType

Output parameters
None

Example request

```
POST /api/admin/extension/EmcBackupService/replicationPolicy/{id}
Content-Type: vAppRefList+xml

<VappRefList>
    <VappRef href="https://vcloud.example.com/api/vApp/vapp-7"/>
    <VappRef href="https://vcloud.example.com/api/vApp/vapp-8"/>
</VappRefList>
```

Example response

```
202 Accepted
Content-Type: task+xml

<Task status="running">
    <Owner
        type="replicationpolicy+xml"
        name="Internet"
```

```
        href="https://vcloud.example.com/api/vApp ad-min/extension/
EmcBackupService/replicationPolicy/{id}" />
</Task>
```

Backup Operations on a BackupRepository

This section contains the following topics.

Get a backup from a backup repository

Operation

GET /api/admin/ extension/EmcBackupService/backupRepository/{id}/backups?vcloudguid={id}&orgguid={id}&vappguid={id}&seqnum={id}

Description

Retrieve a backup from a backup appliance that is filtered by the query parameters.

Input parameters

None

Output parameters

Produce media type(s):
vAppBackupDetail+xml

Output type:
VAppBackupDetail

Example request

```
GET /api/admin/extension/EmcBackupService/backupRepository/45/
backups?        vcloudguid=11&orgguid=22&vappguid=33&seqnum=17
```

Example response

```
200 OK
<vAppBackupDetail type="vappbackup+xml" name="cloud vapp"
bytesprocessed="2147519674" new-bytes="11053" state="completed"
status="success" startedby="scheduled" schedulename="Gold Schedule"
retentionname="Gold Retention" starttime="2015-12-10T23:02:31.142Z"
end-time="2015-12-10T23:03:53.567Z"
effectiveretention="2016-04-08T23:02:12.000Z">
    <VmBackupList>
        <VmBackup include="true" href="https://vcloud.example.com/api/
vApp/vm-38" name="vm-mater-1" status="success">
            <Disk include="true" controllerinstanceid="1"
capacity="1024" diskname="Hard disk 1" diskinstanceid="2000"
addressofparent="0" addressonparent="0"/>

        </VmBackup>
        <VmBackup include="true" href="https://vcloud.example.com/api/
vApp/vm-39" name="vm-mater-2" status="success">
            <Disk include="true" controllerinstanceid="1"
capacity="1024" diskname="Hard disk 1" diskinstanceid="2000"
addressofparent="0" addressonparent="0"/>
        </VmBackup>
    </VmBackupList>
</vAppBackupDetail>
```

Update a backup on a backup repository

Operation

PUT /api/admin/ extension/EmcBackupService/ backupRepository /{id}/backups?vcloudguid={id}&orgguid={id}&vappguid={id}&seqnum={id}

Description
Update a backup on a backup repository that is filtered by the query parameters.

Input parameters
VAppBackupDetailType

Output parameters
Produce media type(s):
task+xml

Output type:
TaskType

Example request

```
PUT /api/admin/extension/EmcBackupService/ backupRepository /{id}/
backups? vcloudguid=11&orgguid=22&vappguid=33&seqnum=17

Content-Type: vAppBackupDetailType+xml

<vAppBackupDetail type="vappbackup+xml" name="cloud vapp"
bytesprocessed="2147519674" new-bytes="11053" state="completed"
status="success" startedby="scheduled" schedulename="Gold Schedule"
retentionname="Gold Retention" starttime="2015-12-10T23:02:31.142Z"
end-time="2015-12-10T23:03:53.567Z"
effectiveretention="2016-04-30T23:02:12.000Z">
    <VmBackupList>
        <VmBackup include="true" href="https://vcloud.example.com/api/
vApp/vm-38" name="vm-mater-1" status="success">
            <Disk include="true" controllerinstanceid="1"
capacity="1024" diskname="Hard disk 1" diskinstanceid="2000"
addressofparent="0" addressonparent="0"/>

        </VmBackup>
        <VmBackup include="true" href="https://vcloud.example.com/api/
vApp/vm-39" name="vm-mater-2" status="success">
            <Disk include="true" controllerinstanceid="1"
capacity="1024" diskname="Hard disk 1" diskinstanceid="2000"
addressofparent="0" addressonparent="0"/>
        </VmBackup>
    </VmBackupList>
</vAppBackupDetail>
```

Example response

```
200 OK

<Task
    href="https://vcloud.example.com/api/task/3f7"
    id="urn:vcloud:task:3f7"
    name="task" type="application/vnd.vmware.vcloud.task+xml"
    status="running"
    operation="Create a new Backup Repository (c99)"
    serviceNamespace="com.emc.vcp.backup">
    <Details></Details>
    <Organization
        href="https://vcloud.example.com/api/org/a93"
        name="System"
        type="application/vnd.vmware.vcloud.org+xml"/>
    <Owner
        href="urn:vcloud:backupRepository:c99"
        id="c99"
        name="Avamar-Backup-Repository-19"
        type="application/vnd.emc.vcp.backupRepository+xml"/>
    <User
        href="https://vcloud.example.com/api/admin/user/c2f"
        name="administrator"
        type="application/vnd.vmware.admin.user+xml"/>
    <Progress>0</Progress>
```

```
    <StartTime>2013-09-04T14:12:43.913-07:00</StartTime>
</Task>
```

Delete a backup from a backup repository

Operation

DELETE /api/admin/extension/EmcBackupService/ backupRepository /{id}/ backups ? vcloudguid={id}&orgguid={id}&vappguid={id}&seqnum={id}

Description

Delete a backup from a backup repository that is filtered by the query parameters.

Input parameters

None

Output parameters

None

Example request

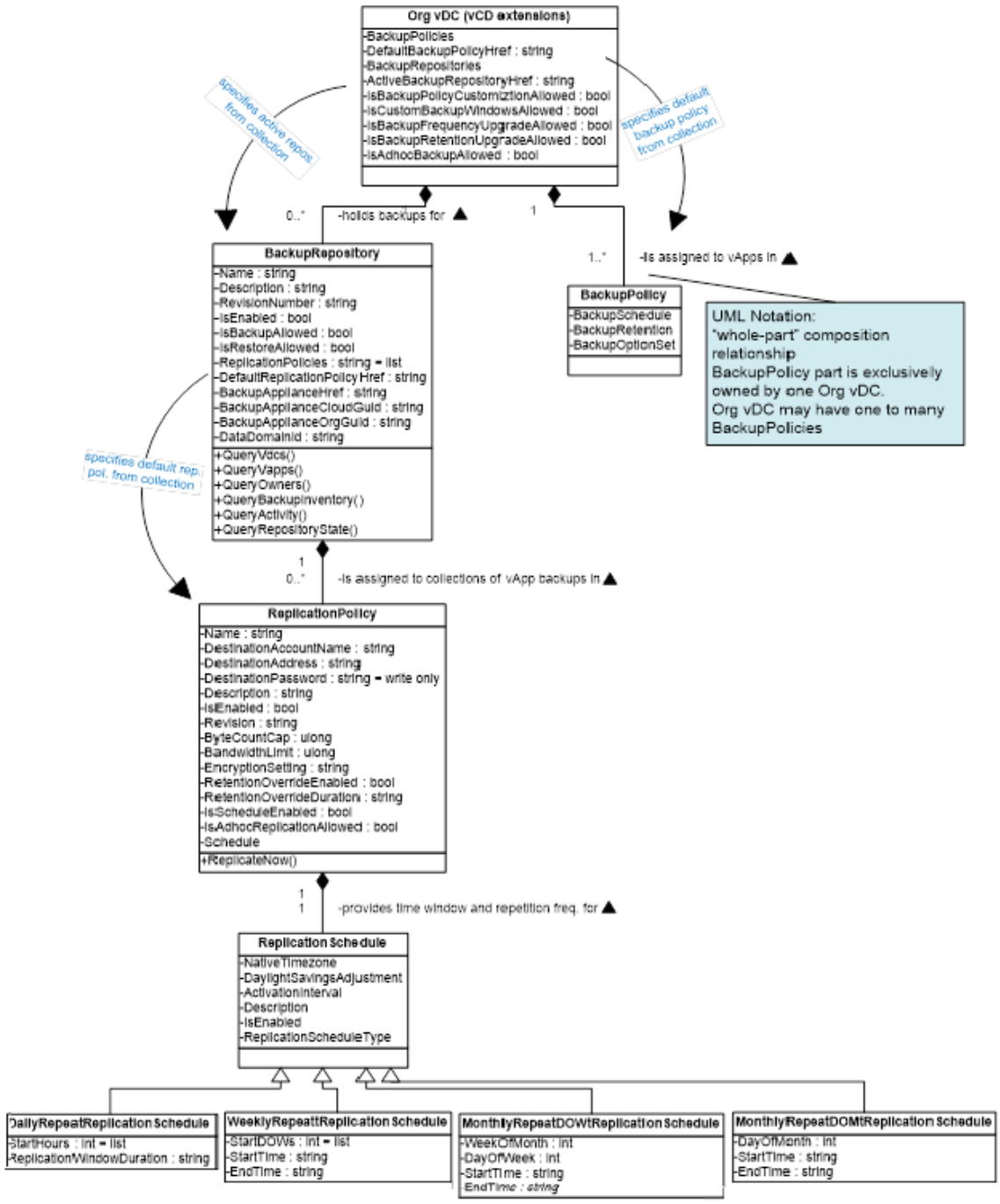
```
DELETE /api/admin/extension/EmcBackupService/ backupRepository /{id}/
backups?        vcloudguid={id}&orgguid={id}&vappguid={id}&seqnum={id}
```

Example response

```
202 Accepted
```

Org vDC — BackupRepository Object Taxonomy

Figure 17 Org vDC — BackupRepository Object Taxonomy



Cancel a running scheduled backup

Operation
POST /api/task/{id}/action/cancel

Description
Cancel a running backup job.

Input parameters
None

Output parameters
Produce media type(s):
None

Example request

```
POST /api/task/457/action/cancel
```

Example response

```
204 No Content
```

Cancel a running ad-hoc backup or restore

Operation
POST /api/task/{id}/action/cancel

Description
Cancel a running backup or restore. The REST API operation which initiates an ad-hoc backup or a restore returns a standard vCloud task identifier. The operation for getting an activity summary returns a task identifier for any running backup or restore activity. Invoking this operation on the vCloud task cancels the backup.

Input parameters
None

Output parameters
None

Example request

```
POST /api/task/457/action/cancel
```

Example response

```
204 No Content
```

Trigger an ad-hoc backup of a vApp

API version
1.0

Operation
POST /api/vApp/vapp-{id}/backups

Description
Trigger ad-hoc backup with selected VMs.

Consider the following notes:

- You can select any child VM of the vApp for an ad-hoc backup and the vApp is fully protected by at least one policy.
- The retention duration of an ad-hoc backup is not from the policy that is associated with the vApp. It is set by PUT /api/admin/org/{org-id}/AdhocConfig and can be retrieved by GET /api/admin/org/{org-id}/protectionOverview.
- API version 3.0 does not support include/exclude of specific disks. If one VM is included, all of its disks are included in the backup.

Input parameters
Consume media type(s):
AdhocBackupParams+xml

Input type:
AdhocBackupParamsType

Output parameters
Produce media type(s):
task+xml

Output type:
Task

Example request

```
POST /api/vApp/vapp-7/backups

Content-Type: adhocBackupParams+xml
<AdhocBackupParams name="adhoc backup with selected VMs">
<VappBackupIncludeList>
<VmInclude vmid="fa3471a4-3fbe-4718-9278-2a2908e89838" href="https://
vcloud.example.com/api/vApp/vm-fa3471a4-3fbe-4718-9278-2a2908e89838"/>
<VmInclude vmid="444b4f05-3bc5-46b3-98ea-089724b15ce3" href="https://
vcloud.example.com/api/vApp/vm-444b4f05-3bc5-46b3-98ea-089724b15ce3"/>
</VappBackupIncludeList>
</AdhocBackupParams>
```

Example response

```
POST

202

Accepted

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<Task xmlns="http://www.vmware.com/vcloud/v1.5" href="https://
vcloud.example.com/api/task/ea519721-6ec2-4de1-bc85-08a25ac56140"
id="urn:vcloud:task:ea519721-6ec2-4de1-bc85-08a25ac56140" name="task"
type="application/vnd.vmware.vcloud.task+xml" status="queued"
operation="Adhoc Backup for Virtual Application
vApp_Fully_Configured_Jing(60e35311-bb94-43ac-8e74-975787d903d8)" op-
erationName="adhocBackup" serviceNamespace="com.emc.vcp.backup"
startTime="2018-04-10T11:32:53.779-04:00"
expiryTime="2018-07-09T11:32:53.779-04:00" cancelRequested="false">
    <Owner type="application/vnd.vmware.vcloud.vApp+xml"
href="https://vcloud.example.com/api/vApp/vapp-60e35311-
bb94-43ac-8e74-975787d903d8"/>
    <User name="bing" type="application/vnd.vmware.admin.user+xml"
href="https://vcloud.example.com/api/admin/user/
03970817-2e94-46ba-97f5-1754203c6d77"/>
    <Organization name="avamar" type="application/
vnd.vmware.vcloud.org+xml" href="https://vcloud.example.com/api/org/
f68a6dd9-3383-46c0-a95a-f19822942108"/>
    <Progress>0</Progress>
    <Details></Details>
</Task>
```

Note

The addressofparent attribute is derived from the VM's XML data. To obtain this value, first find the Disk to be excluded in the ovf data in the VM's xml. From that object, take the rasd:Parent value. Use this value to find the Disk Controller whose rasd:InstanceID matches the rasd:Parent value. The addressofparent value is the rasd:Address value of that controller. See the following example.

```
<ovf:Item>
    <rasd:Address>0</rasd:Address>
    <rasd:Description>SCSI Controller</rasd:Description>
    <rasd:ElementName>SCSI Controller 0</rasd:ElementName>
    <rasd:InstanceID>2</rasd:InstanceID>
    <rasd:ResourceSubType>lsilogicsas</rasd:ResourceSubType>
    <rasd:ResourceType>6</rasd:ResourceType>
</ovf:Item>
<ovf:Item>
    <rasd:AddressOnParent>0</rasd:AddressOnParent>
    <rasd:Description>Hard disk</rasd:Description>
    <rasd:ElementName>Hard disk 1</rasd:ElementName>
    <rasd:HostResource ns12:capacity="40960"
ns12:busSubType="lsilogicsas" ns12:busType="6"/>
    <rasd:InstanceID>2000</rasd:InstanceID>
    <rasd:Parent>2</rasd:Parent>
    <rasd:ResourceType>17</rasd:ResourceType>
</ovf:Item>
```

Description

Triggers an ad-hoc backup of a vApp. The caller may optionally specify a policy to be used for the ad-hoc backup. Additionally, the policy must be associated with the vApp, in order that an ad-hoc backup can be run using the policy. This policy is used to derive configuration to be used for the backup, for example, retention period for the backup. This gives the user more control of ad-hoc backup, such as the retention period. For example, if a vApp has two backup policies, one with 20 days retention, another with 40 days retention, the user can define the retention period for this backup by passing in the corresponding backup policy Id. In addition, an optional exclusion list may be specified, for listing which components (VM or Disks) of the vApp need to be excluded from the backup.

Depending on which optional parameters are specified in this call, there are a few different backup configurations that may result:

1. Ad-hoc Backup with no additional parameters:
    a. Retention and Group Encryption that are used from vApp Default Policy.
    b. Exclusions from default policy that is used if set in policy definition.
2. Ad-hoc Backup with Policy specified:
    a. Retention and Group Encryption used policy that is specified.
    b. Exclusions from policy that is used if set in policy definition.
3. Ad-hoc Backup with Exclusions specified:
    a. Retention and Group Encryption that are used from default policy that is configured for vApp.
    b. Exclusions that are specified in parameters that are used.
4. Ad-hoc Backup with Policy and Exclusions specified:
    a. Retention and Group Encryption that are used from policy that is specified.
    b. Exclusions that are specified in parameters take precedence over Policy exclusions. In essence, Policy exclusions not used.

Input parameters
Consume media type(s):
AdhocBackupParams+xml

Input type:
AdhocBackupParamsType

Output parameters
Produce media type(s):
task+xml

Output type:
TaskType

Example request

```
POST /api/vApp/vapp-7/backups
Content-Type: adhocBackupParams+xml

<AdhocBackupParams name="Supplemental backup before patching OS”
policyId=“44” >
    <VappBackupExcludeList excludeallvms="false" >
        <VmExclude excludealldisks="true" href="https://
vcloud.example.com/api/vApp/vm-1"/>
        <VmExclude excludealldisks="false" href="https://
vcloud.example.com/api/vApp/vm-2">
            <DiskExclude addressofparent="0" diskinstanceid="2000"/
>
        </VmExclude>
    </VappBackupExcludeList>
</AdhocBackupParams>
```

Note

The policyId can only be set as a backup policy currently assigned to the vApp.

Example response

```
202 Accepted
Content-Type: task+xml

<Task status="running"
    href="https://vcloud.example.com/api/task/57"
    ...>
    <vCloud:Owner
    href="https://vcloud.example.com/api/admin/org/f00edb3b-99a5-41fc-
a2c6-d61c7f9575ec"
    name="Default"
    type="application/vnd.vmware.admin.organization+xml"/>
</Task>
```

List backup inventory for a vApp

Operation
GET /api/vApp/vapp-{id}/backups

GET /api/vApp/vapp-{id}/backups?page={pagenumber}&pageSize={pagesize}

Description
Get list of backups of a vApp from the active backup repository. The page and pageSize parameters optionally allow the inventory to be retrieved in blocks.

Input parameters
None

Output parameters
Produce media type(s):
backupAppliance+xml

Output type:
BackupApplianceType

Example request

```
GET /api/vApp/vapp-7/backups
```

Example response

```
200 OK
Content-Type: backupAppliance+xml

<vAppBackupList>
    <vAppBackup
        href="https://vcloud.example.com/api/vApp/7/backup/123"
        bytesprocessed="10000000000"
        state="completed"
        status="success" <!-- or “partial” -->
        startedby="adhoc"
        schedulename="" <!-- blank for adhoc -->
        created="2012-010-02T13:09:00Z"
        expiration="2012-010-02T13:09:02Z" />
    <vAppBackup ... />
    <vAppBackup ... />
</vAppBackupList>
```

Get detailed information related to a specific vApp backup

Operation
GET /api/vApp/vapp-{id}/backup/{id}

Description
Get list of detailed information about a completed backup. The information includes a list of the VMs included in the vApp backup, and a list of the disks that are recoverable. Since it is possible to exclude individual VMs and disks by policy, a vApp backup may contain only a subset of the original content at the time of the backup. The output of this operation is typically used in a subsequent invocation to change a backup retention period or to initiate an ad-hoc restore.

Input parameters
None

Output parameters
Produce media type(s):
vappBackupDetail+xml

Output type:
vAppBackupDetailType

Example request

```
GET /api/vApp/7/backup/123
```

Example response

```
200 OK
Content-Type: vappBackupDetail+xml

<vAppBackupDetail
    type="vappbackupdetail+xml"
    href="https://vcloud.example.com/api/vApp/7/backup/123"
    bytesprocessed="10000000000"
```

```
    newbytes="34000000"
    state="completed"
    status="success" <!-- or “partial” -->
    startedby="adhoc"
    schedulename=""
    retentionname="Gold SLA"
    starttime="2012-010-02T13:09:00Z"
    endtime="2012-010-02T13:09:02Z"
    effectiveretention="2019-010-03T13:00:00">
    <VmBackupList>
        <VmBackup
            include="true"
            href="https://vcloud.example.com/api/vApp/vm-4"
            name="ubuntu10-x86"
            status=”success”>
            <Disk
                include="true"
                controllerinstanceid="2"
                capacity="10240"
                storageprofile=”44”
                diskname="Hard disk 1"
                diskinstanceid="2000"
                addressofparent=”0”
                addressonparent=”0” />
        </VmBackup>
        <VmBackup
            include="true"
            href="https://vcloud.example.com/api/vApp/vm-5"
            name="ubuntu10-x64"
            status=success>
            <Disk
                include="false"
                controllerinstanceid="2"
                capacity="10240"
                storageprofile=”44”
                diskname="Hard disk 1"
                diskinstanceid="2000"
                addressofparent=”0”
                addressonparent=”0” />
            <Disk
                include="true"
                controllerinstanceid="2"
                capacity="20480"
                storageprofile=”44”
                diskname="Hard disk 2"
                diskinstanceid="2001"
                addressofparent=”0”
                addressonparent=”1” />
        </VmBackup>
        <VmBackup
            include="false"
            href="https://vcloud.example.com/api/vApp/vm-6"
            name="windows2008-x86">
            <Disk
                include="true"
                controllerinstanceid="2"
                capacity="10240"
                storageprofile=”44”
                diskname="Hard disk 1"
                diskinstanceid="2000"
                addressofparent=”0”
                addressonparent=”0” />
        </VmBackup>
    </VmBackupList>
</vAppBackupDetail>
```

Get metadata collection of a specific vApp backup

Operation
GET /api/vApp/vapp-{id}/backup/{id}/backupmetadatacollection

Description
Get metadata collection of a vApp backup.

Input parameters
None

Output parameters
backupMetadataCollection

Example request

```
GET /api/vApp/7/backup/123/backupmetadatacollection
```

Example response

```
200 OK
Content-Type: backupMetadataCollection+xml

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<BackupMetadataCollection xmlns:ns6="http://schemas.dmtf.org/wbem/
wscim/1/cim-schema/2/CIM_ResourceAllocationSettingData"
xmlns:ns5="http://schemas.dmtf.org/wbem/wscim/1/common"
xmlns:ns7="http://schemas.dmtf.org/ovf/environment/1"
xmlns:ns2="http://www.vmware.com/vcloud/v1.5" xmlns:ns4="http://
schemas.dmtf.org/wbem/wscim/1/cim-schema/2/
CIM_VirtualSystemSettingData" xmlns:ns3="http://schemas.dmtf.org/ovf/
envelope/1">
    <BackupMetadataItem source="vApp/vapp-1" type="vappmetadata">
        <ns2:Metadata href="https://vcloud.example.com.com/api/vApp/
vapp-1/metadata" type="application/vnd.vmware.vcloud.metadata+xml">
            <ns2:Link rel="up" href="https://
vcloud.example.com.com/api/vApp/vapp-1" type="application/
vnd.vmware.vcloud.vApp+xml"/>
            <ns2:Link rel="add" href="https://
vcloud.example.com.com/api/vApp/vapp-1/metadata" type="application/
vnd.vmware.vcloud.metadata+xml"/>
            <ns2:MetadataEntry href="https://
vcloud.example.com.com/api/vApp/vapp-1/metadata/SYSTEM/
vapp.origin.id" type="application/vnd.vmware.vcloud.metadata.value
+xml">
                <ns2:Link rel="up" href="https://
vcloud.example.com.com/api/vApp/vapp-1/metadata" type="application/
vnd.vmware.vcloud.metadata+xml"/>
                <ns2:Link rel="edit" href="https://
vcloud.example.com.com/api/vApp/vapp-1/metadata/SYSTEM/
vapp.origin.id" type="application/vnd.vmware.vcloud.metadata.value
+xml"/>
                <ns2:Link rel="remove" href="https://
vcloud.example.com/api/vApp/vapp-7/metadata/SYSTEM/vapp.origin.id"/>
                <ns2:Domain visibility="READONLY">SYSTEM</ns2:Domain>
                <ns2:Key>vapp.origin.id</ns2:Key>
                <ns2:TypedValue xsi:type="ns2:MetadataStringValue"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
                    <ns2:Value>99</ns2:Value>

                </ns2:TypedValue>

            </ns2:MetadataEntry>
            <ns2:MetadataEntry href="https://
vcloud.example.com.com/api/vApp/vapp-1/metadata/SYSTEM/
vapp.origin.name" type="application/vnd.vmware.vcloud.metadata.value
+xml">
```

```
                <ns2:Link rel="up" href="https://
vcloud.example.com.com/api/vApp/vapp-1/metadata" type="application/
vnd.vmware.vcloud.metadata+xml"/>
                <ns2:Link rel="edit" href="https://
vcloud.example.com.com/api/vApp/vapp-1/metadata/SYSTEM/
vapp.origin.name" type="application/vnd.vmware.vcloud.metadata.value
+xml"/>
                <ns2:Link rel="remove" href="https://
vcloud.example.com.com/api/vApp/vapp-1/metadata/SYSTEM/
vapp.origin.name"/>
                <ns2:Domain visibility="READONLY">SYSTEM</ns2:Domain>
                <ns2:Key>vapp.origin.name</ns2:Key>
                <ns2:TypedValue xsi:type="ns2:MetadataStringValue"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
                    <ns2:Value>vApp_sample</ns2:Value>

                </ns2:TypedValue>

            </ns2:MetadataEntry>
            <ns2:MetadataEntry href="https://
vcloud.example.com.com/api/vApp/vapp-1/metadata/SYSTEM/
vapp.origin.type" type="application/vnd.vmware.vcloud.metadata.value
+xml">
                <ns2:Link rel="up" href="https://
vcloud.example.com.com/api/vApp/vapp-1/metadata" type="application/
vnd.vmware.vcloud.metadata+xml"/>
                <ns2:Link rel="edit" href="https://
vcloud.example.com.com/api/vApp/vapp-1/metadata/SYSTEM/
vapp.origin.type" type="application/vnd.vmware.vcloud.metadata.value
+xml"/>
                <ns2:Link rel="remove" href="https://
vcloud.example.com.com/api/vApp/vapp-1/metadata/SYSTEM/
vapp.origin.type"/>
                <ns2:Domain visibility="READONLY">SYSTEM</ns2:Domain>
                <ns2:Key>vapp.origin.type</ns2:Key>
                <ns2:TypedValue xsi:type="ns2:MetadataStringValue"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
                    <ns2:Value>com.vmware.vcloud.entity.vapp</
ns2:Value>

                </ns2:TypedValue>

            </ns2:MetadataEntry>

        </ns2:Metadata>

    </BackupMetadataItem>
    <BackupMetadataItem source="vApp/vm-2" type="vmmetadata">
        <ns2:Metadata href="https://vcloud.example.com.com/api/vApp/
vm-2/metadata" type="application/vnd.vmware.vcloud.metadata+xml">
            <ns2:Link rel="up" href="https://
vcloud.example.com.com/api/vApp/vm-2" type="application/
vnd.vmware.vcloud.vm+xml"/>
            <ns2:Link rel="add" href="https://
vcloud.example.com.com/api/vApp/vm-2/metadata" type="application/
vnd.vmware.vcloud.metadata+xml"/>

        </ns2:Metadata>

    </BackupMetadataItem>
</BackupMetadataCollection>
```

Get configuration collection of a specific vApp backup

Operation
GET /api/vApp/vapp-{id}/backup/{id}/ vappconfigcollection

Description
Get configuration collection of a vApp backup.

Input parameters
None

Output parameters
Produce media type(s):
VappConfigCollection+xml

Output type:
vappConfigCollection

Example request

```
GET /api/vApp/7/backup/123/vappconfigcollection
```

Example response

```
200 OK

Content-Type: vappConfigCollection+xml

<VappConfigCollection>
    <VApp xmlns="http://www.vmware.com/vcloud/v1.5" xmlns:ovf="http://
schemas.dmtf.org/ovf/envelope/1" href="https://vcloud.example.com/api/
vApp/vapp-7" name="vApp_demo_2" ovfDescriptorUpload-ed="true"
status="8" type="application/vnd.vmware.vcloud.vApp+xml"
xsi:schemaLocation="http://www.vmware.com/vcloud/extension/v1.5
http://10.110.205.49/api/v1.5/schema/vmwextensions.xsd http://
schemas.dmtf.org/wbem/wscim/1/cim-schema/2/
CIM_VirtualSystemSettingData http://schemas.dmtf.org/wbem/wscim/1/cim-
schema/2.22.0/CIM_VirtualSystemSettingData.xsd http://www.vmware.com/
schema/ovf http://www.vmware.com/schema/ovf http://
schemas.dmtf.org/ovf/envelope/1 http://schemas.dmtf.org/ovf/
envelope/1/dsp8023_1.1.0.xsd http://www.vmware.com/vcloud/v1.5 http://
10.110.205.49/api/v1.5/schema/master.xsd http://schemas.dmtf.org/wbem/
wscim/1/cim-schema/2/CIM_ResourceAllocationSettingData http://
schemas.dmtf.org/wbem/wscim/1/cim-schema/2.22.0/
CIM_ResourceAllocationSettingData.xsd">

        ...deleted for brevity...

        <Description> Sample VApp </Description>
        <ovf:StartupSection xmlns:vCloud="http://www.vmware.com/
vcloud/v1.5" vCloud:href="https://vcloud.example.com/api/vApp/vapp-7/
startupSection/" vCloud:type="application/
vnd.vmware.vcloud.startupSection+xml">
            <ovf:Info>VApp startup section</ovf:Info>
            <ovf:Item ovf:id="Vm-128gb" ovf:order="0"
ovf:startAction="powerOn" ovf:startDelay="0"
ovf:stopAction="powerOff" ovf:stopDelay="0"/>
            <Link href="https://vcloud.example.com/api/vApp/vapp-7/
startupSection/" rel="edit" type="application/
vnd.vmware.vcloud.startupSection+xml"/>
        </ovf:StartupSection>
        <ovf:NetworkSection xmlns:vCloud="http://www.vmware.com/
vcloud/v1.5" vCloud:href="https://vcloud.example.com/api/vApp/vapp-7/
networkSection/" vCloud:type="application/
vnd.vmware.vcloud.networkSection+xml">
            <ovf:Info>The list of logical networks</ovf:Info>
            <ovf:Network ovf:name="VLAN3026">
                <ovf:Description>VLAN3026</ovf:Description>
            </ovf:Network>
        </ovf:NetworkSection>

        ...deleted for brevity...

        <SnapshotSection href="https://vcloud.example.com/api/vApp/
```

```
vapp-7/snapshotSection" ovf:required="false" type="application/
vnd.vmware.vcloud.snapshotSection+xml">
            <ovf:Info>Snapshot information section</ovf:Info>
        </SnapshotSection>
        <Owner type="application/vnd.vmware.vcloud.owner+xml">
            <User href="https://vcloud.example.com/api/admin/user/
11364060-b405-457f-a429-7394def6e8b6" name="system" type="application/
vnd.vmware.admin.user+xml"/>
        </Owner>
        <InMaintenanceMode>true</InMaintenanceMode>
        <Children>
            <Vm deployed="false" href="https://vcloud.example.com/api/
vApp/vm-22" name="Vm-128gb" needsCustomization="true" status="8"
type="application/vnd.vmware.vcloud.vm+xml">
                <VCloudExtension required="false">
                    <vmext:VmVimInfo>
                        <vmext:VmVimObjectRef>
                            <vmext:VimServerRef   href="https://
vcloud.example.com/api/admin/extension/vimServer/77" name="resource-
vcenter-1" type="application/vnd.vmware.admin.vmwvirtualcenter+xml"/>
                            <vmext:MoRef>vm-4369</vmext:MoRef>
                            <vmext:VimObjectType>VIRTUAL_MACHINE</
vmext:VimObjectType>
                        </vmext:VmVimObjectRef>
                        <vmext:DatastoreVimObjectRef>
                            <vmext:VimServerRef href="https://
vcloud.example.com/api/admin/extension/vimServer/77" name="resource-
vcenter-1" type="application/vnd.vmware.admin.vmwvirtualcenter+xml"/>
                            <vmext:MoRef>datastore-21</vmext:MoRef>
                            <vmext:VimObjectType>DATASTORE</
vmext:VimObjectType>
                        </vmext:DatastoreVimObjectRef>
                        <vmext:HostVimObjectRef>
                            <vmext:VimServerRef href="https://
vcloud.example.com/api/admin/extension/vimServer/77" name="resource-
vcenter-1" type="application/vnd.vmware.admin.vmwvirtualcenter+xml"/>
                            <vmext:MoRef>host-13</vmext:MoRef>
                            <vmext:VimObjectType>HOST</
vmext:VimObjectType>
                        </vmext:HostVimObjectRef>
                        <vmext:VirtualDisksMaxChainLength>1</
vmext:VirtualDisksMaxChainLength>
                    </vmext:VmVimInfo>
                </VCloudExtension>

                ...deleted for brevity ...

            </Vm>
        </Children>
    </VApp>
    <VappReconfigurationCollection>
        <ovf:StartupSection xmlns:ovf="http://schemas.dmtf.org/ovf/
envelope/1" xmlns:vCloud="http://www.vmware.com/vcloud/v1.5"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
vCloud:href="https://vcloud.example.com/api/vApp/vapp-7/
startupSection/" vCloud:type="application/
vnd.vmware.vcloud.startupSection+xml" xsi:schemaLocation="http://
schemas.dmtf.org/ovf/envelope/1 http://schemas.dmtf.org/ovf/
envelope/1/dsp8023_1.1.0.xsd http://www.vmware.com/vcloud/v1.5 http://
10.110.205.49/api/v1.5/schema/master.xsd">
            <ovf:Info>VApp startup section</ovf:Info>
            <ovf:Item ovf:id="Vm-128gb" ovf:order="0"
ovf:startAction="powerOn" ovf:startDelay="0"
ovf:stopAction="powerOff" ovf:stopDelay="0"/>
            <vCloud:Link href="https://vcloud.example.com/api/vApp/
vapp-7/startupSection/" rel="edit" type="application/
vnd.vmware.vcloud.startupSection+xml"/>
        </ovf:StartupSection>

        ...deleted for brevity ...
```

```
        <Owner xmlns="http://www.vmware.com/vcloud/v1.5"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
type="application/vnd.vmware.vcloud.owner+xml"
xsi:schemaLocation="http://www.vmware.com/vcloud/v1.5 http://
10.110.205.49/api/v1.5/schema/master.xsd">
            <User href="https://vcloud.example.com/api/admin/user/11"
name="system" type="application/vnd.vmware.admin.user+xml"/>
        </Owner>
        <Metadata xmlns="http://www.vmware.com/vcloud/v1.5"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" href="https://
vcloud.example.com/api/vApp/vapp-7/metadata" type="application/
vnd.vmware.vcloud.metadata+xml" xsi:schemaLocation="http://
www.vmware.com/vcloud/v1.5 http://10.10.25.49/api/v1.5/schema/
master.xsd">
                ...deleted for brevity ...
        </Metadata>
        <ProductSectionList xmlns="http://www.vmware.com/vcloud/v1.5"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" href="https://
vcloud.example.com/api/vApp/vapp-7/productSections/"
type="application/vnd.vmware.vcloud.productSections+xml"
xsi:schemaLocation="http://www.vmware.com/vcloud/v1.5 http://
10.10.25.49/api/v1.5/schema/master.xsd">
            <Link href="https://vcloud.example.com/api/vApp/vapp-7/
productSections/" rel="edit" type="application/
vnd.vmware.vcloud.productSections+xml"/>
        </ProductSectionList>
    </VappReconfigurationCollection>
    <VMConfigCollection>
        <VMConfig>
            <Vm xmlns="http://www.vmware.com/vcloud/v1.5"
xmlns:ovf="http://schemas.dmtf.org/ovf/envelope/1" xmlns:rasd="http://
schemas.dmtf.org/wbem/wscim/1/cim-schema/2/
CIM_ResourceAllocationSettingData" href="https://
vcloud.example.com/api/vApp/vm-22" name="Vm-128gb"
needsCustomization="true" status="8" type="application/
vnd.vmware.vcloud.vm+xml" sche-ma/2.22.0/
CIM_ResourceAllocationSettingData.xsd">

                ...deleted for brevity ...
            </Vm>

            <VMReconfigurationCollection>

                        ...deleted for brevity ...

                    <Enabled>false</Enabled>
                    <ChangeSid>false</ChangeSid>
                    <VirtualMachineId>77</VirtualMachineId>
                    <ComputerName>vApp-templa-001</ComputerName>
                    <Link href="https://vcloud.example.com/api/vApp/
vm-22/guestCustomizationSection/" rel="edit" type="application/
vnd.vmware.vcloud.guestCustomizationSection+xml"/>
                </GuestCustomizationSection>
                <Metadata xmlns="http://www.vmware.com/vcloud/v1.5"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" href="https://
vcloud.example.com/api/vApp/vm-22/metadata" type="application/
vnd.vmware.vcloud.metadata+xml" xsi:schemaLocation="http://
www.vmware.com/vcloud/v1.5 http://10.10.25.49/api/v1.5/schema/
master.xsd">
                    <Link href="https://vcloud.example.com/api/vApp/
vm-22" rel="up" type="application/vnd.vmware.vcloud.vm+xml"/>
                    <Link href="https://vcloud.example.com/api/vApp/
vm-22/metadata" rel="add" type="application/vnd.vmware.vcloud.metadata
+xml"/>
                </Metadata>
                <ProductSectionList xmlns="http://www.vmware.com/
vcloud/v1.5" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
href="https://vcloud.example.com/api/vApp/vm-22/productSections/"
type="application/vnd.vmware.vcloud.productSections+xml"
```

```
xsi:schemaLocation="http://www.vmware.com/vcloud/v1.5 http://
10.10.25.49/api/v1.5/schema/master.xsd">
                    <Link href="https://vcloud.example.com/api/vApp/
vm-22/productSections/" rel="edit" type="application/
vnd.vmware.vcloud.productSections+xml"/>
                </ProductSectionList>
            </VMReconfigurationCollection>
        </VMConfig>
    </VMConfigCollection>
</VappConfigCollection>
```

Query whether disk configuration changes have occurred since a specific vApp backup

Operation
GET /api/vApp/vapp-{id}/backup/{id}/queryDiskReconfigured

Description
Many types of VM disk configuration changes prevent a simple VM "rollback" based on changed block recovery during a restore. For example: deleting a disk might make it impossible to remap disks at time of backup to surviving disks. Instead, a restore results in a VM delete, followed by recomposition of the VM.

VM deletion and recomposition results in generation of a new VM identifier and requires the same time as recovering the VM in a restore to new vApp.

Since a vApp must be powered off during a restore, when VM recomposition is required, a user might want to consider a restore to new instead of a rollback restore.

This operation identifies the VMs included in a backup, and compares the disk configuration of these VMs at the time of backup to the disk configuration now. A Boolean attribute is returned for each VM, indicating whether a restore requires VM deletion and recomposition.

If a VM was excluded from the backup, a recomposition is required.

Input parameters
None

Output parameters
Produce media type(s):
vappBackupDetail+xml

Output type:
vAppBackupDetailType

Example request

```
GET /api/vApp/7/backup/123
```

Example response

```
200 OK
Content-Type: vappBackupDetail+xml

<vAppBackupDetail
    type="vappbackupdetail+xml"
    href="https://vcloud.example.com/api/vApp/7/backup/123"
    bytesprocessed="10000000000"
    newbytes="34000000"
    state="completed"
    status="success" <!-- or “partial” -->
    startedby="adhoc"
    schedulename=""
    retentionname="Gold SLA"
```

```
    starttime="2012-010-02T13:09:00Z"
    endtime="2012-010-02T13:09:02Z"
    effectiveretention="2019-010-03T13:00:00">
    <VmBackupList>
        <VmBackup
            include="true"
            href="https://vcloud.example.com/api/vApp/vm-4"
            name="ubuntu10-x86"
            status=”success”
            VmReconstructRequired=false>
            <Disk
                include="true"
                controllerinstanceid="2"
                capacity="10240"
                storageprofile=”44”
                diskname="Hard disk 1"
                diskinstanceid="2000"
                addressofparent=”0”
                addressonparent=”0” />
        </VmBackup>
        <VmBackup
            include="true"
            href="https://vcloud.example.com/api/vApp/vm-5"
            name="ubuntu10-x64"
            status=success
            VmReconstructRequired=false >
            <Disk
                include="false"
                controllerinstanceid="2"
                capacity="10240"
                storageprofile=”44”
                diskname="Hard disk 1"
                diskinstanceid="2000"
                addressofparent=”0”
                addressonparent=”0” />
            <Disk
                include="true"
                controllerinstanceid="2"
                capacity="20480"
                diskname="Hard disk 2"
                diskinstanceid="2001"
                addressofparent=”0”
                addressonparent=”1” />
        </VmBackup>
        <VmBackup
            include="false"
            href="https://vcloud.example.com/api/vApp/vm-6"
            name="windows2008-x86"
            VmReconstructRequired=true >
            <Disk
                include="true"
                controllerinstanceid="2"
                capacity="10240"
                storageprofile=”44”
                diskname="Hard disk 1"
                diskinstanceid="2000"
                addressofparent=”0”
                addressonparent=”0” />
        </VmBackup>
    </VmBackupList>
</vAppBackupDetail>
```

Change the retention period of a specific vApp backup

Operation

PUT /api/vApp/vapp-{id}/backup/{id}

Description

Change the retention period of a completed backup.

The output of a GET operation should be edited and submitted in this PUT operation to alter the effective retention date of a backup. Changes to elements and attributes other than retention date are ignored, but it recommended that they be returned unaltered to ensure validation of the input.

Input parameters

Consume media type(s):
vappBackupDetail+xml

Output type:
vAppBackupDetailType

Output parameters

Produce media type(s):
task+xml

Output type:
TaskType

Example request

```
PUT /api/vApp/7/backup/123
Content-Type: vappBackup+xml

<vAppBackupDetail
    type="vappbackupdetail+xml"
    name="pre aug 2012 patch"
    href="https://vcloud.example.com/api/vApp/7/backup/123"
    bytesprocessed="10000000000"
    newbytes="34000000"
    state="completed"
    status="success"
    startedby="adhoc"
    schedulename=""
    retentionname="Gold SLA"
    errors="0"
    warnings="0"
    starttime="2012-010-02T13:09:00"
    endtime="2012-010-02T13:09:02"
    effectiveretention="2020-010-03T13:00:00">
    <VmBackupList>
        <VmBackup
            include="true"
            href="https://vcloud.example.com/api/vApp/vm-4"
            name="ubuntu10-x86">
            <Disk
                include="true"
                controllerinstanceid="2"
                capacity="10240"
                storageprofile=”44”
                diskname="Hard disk 1"
                diskinstanceid="2000"
                addressofparent=”0”
                addressonparent=”0” />
        </VmBackup>
        <VmBackup
            include="true"
            href="https://vcloud.example.com/api/vApp/vm-5"
            name="ubuntu10-x64">
            <Disk
                include="false"
                controllerinstanceid="2"
                capacity="10240"
                storageprofile=”44”
                diskname="Hard disk 1"
```

```
                diskinstanceid="2000"
                addressofparent="0"
                addressonparent="0" />
            <Disk
                include="true"
                controllerinstanceid="2"
                capacity="20480"
                storageprofile="44"
                diskname="Hard disk 2"
                diskinstanceid="2001"
                addressofparent="0"
                addressonparent="1" />
        </VmBackup>
        <VmBackup
            include="false"
            href="https://vcloud.example.com/api/vApp/vm-6"
            name="windows2008-x86">
            <Disk
                include="true"
                controllerinstanceid="2"
                capacity="10240"
                storageprofile="44"
                diskname="Hard disk 1"
                diskinstanceid="2000"
                addressofparent="0"
                addressonparent="0" />
        </VmBackup>
    </VmBackupList>
</vAppBackupDetail>
```

Example response

```
202 Accepted
Content-Type: task+xml

<Task status="running">
    <Owner
        type="backup+xml"
        name="Internet"
        href="https://vcloud.example.com/api/vApp/7/backup/123" />
</Task>
```

Delete a specific vApp backup

Operation
DELETE /api/vApp/vapp-{id}/backup/{id}

Description
Delete a completed backup in the active backup repository.

Input parameters
None

Output parameters
None

Example request

```
DELETE /api/vApp/7/backup/123
```

Example response

```
204 No Content
```

Configure list of excluded VMs and disks, inside a vApp

Exclude lists are used to exclude VMs and disks from backups. An exclude list can be configured on a per vApp basis. By default, all vApps have an empty exclude list. When a vApp has an empty exclude list, all VMs, and all non-independent disks are included in backups. At the vApp level, it is possible to over-ride this default behavior and provide a list of specific VMs, or specific disks, within a specific VM, that is excluded from all backups.

In API Version 2.0, exclude list can only be configured at the backup policy level on a vApp. For example, if a vApp contains three backup policies, a different exclude list can be applied to each of the three backup policies. The exclude list from API Version 1.0 remains at the vApp level; however it will not be used. All other exclude lists are marked with the corresponding backup policy id.

A PUT operation completely replaces the previous backup exclude list for a vApp. A GET operation returns the existing exclude list, if one has been defined. A DELETE operation removes the exclude, if one is present, resulting in an empty exclude list.

Consider the following notes:

- VMs that are excluded, in their entirety, will not be snap shotted. All other VMs are snap shotted during a vApp backup.
- Non-independent disks are included in snapshots if the associated parent VM is snap shotted.
- If a VM is added to a vApp, it is included in backups by default, unless subsequently excluded by explicit configuration of the exclude list.
- If a disk is added to a VM, it is included in backups by default, unless the parent VM is excluded in its entirety by the exclude list configuration.
- The internal implementation of the exclude list holds the exclude list configuration in the system administrator restricted area of the vCloud Director's vApp metadata. This means that any vCloud Director operation (migration, etc.) that preserves vApp metadata will also preserve the exclude list configuration. This also means that any vCloud Director operation which might "roll back" metadata, such as an offline recovery of the vCloud Director database, or a recovery of a vApp from backup, could alter the exclude list.

API version 1.0

API version
1.0

Operation
PUT /api/vApp/vapp-{id}/backupexcludelist

Description
Configure one of more backup exclude list(s) for a vApp. Each exclude list is configured for the combination of a vApp and a policy attached to the vApp. For example, if there are four policies attached to a vApp, there may be four exclude lists for the vApp, one for each policy attached. Exclusions can be used to segregate VMs and/or VM disks between policies, for supporting different schedules and retentions across these. They are used when backup is run with the specified policy.

Consider the following notes:

- API version 2.0 does not support exclusions at vApp level. All exclusions that were configured at the vApp level prior to version 2.0 must be manually ported/ distributed at the policy level by the user.
- Policies must be associated with the vApp in order to set up exclusions at the policy level for this vApp.

Input parameters
Consume media type(s):
vappBackupExcludeList+xml

Input type:
VappBackupExcludeList

Output parameters
VappBackupExcludeList+xml

PUT /api/vApp/7/backupexcludelist

Example request

```
<VappBackupExcludeList excludeallvms="false" >
        <VmExclude excludealldisks="true" href="https://
vcloud.example.com/api/vApp/vm-4"/>
        <VmExclude excludealldisks="false" href="https://
vcloud.example.com/api/vApp/vm-5">
            <DiskExclude addressofparent="2" diskinstanceid="2000"/>
            <DiskExclude addressofparent="2" diskinstanceid="2001"/>
        </VmExclude>
    </VappBackupExcludeList>
```

Example response

```
200 OK

<VappBackupExcludeList excludeallvms="false" >
    <VmExclude excludealldisks="true" href="https://
vcloud.example.com/api/vApp/vm-4"/>
    <VmExclude excludealldisks="false" href="https://
vcloud.example.com/api/vApp/vm-5">
        <DiskExclude addressofparent="2" diskinstanceid="2000"/>
        <DiskExclude addressofparent="2" diskinstanceid="2001"/>
    </VmExclude>
</VappBackupExcludeList>
```

API version 2.0

API version
2.0

Operation
PUT /api/vApp/vapp-{id}/backupexcludelist

Description
Configure one of more backup exclude lists for a vApp. Each exclude list is configured for the combination of a vApp and a policy that is attached to the vApp. For example, if there are four policies that are attached to a vApp, there may be four exclude lists for the vApp, one for each policy attached. Exclusions can be used to segregate VMs and/or VM disks between policies, for supporting different schedules and retentions across these. They are used when backup is run with the specified policy.

Consider the following notes:

- This version does not support exclusions at vApp level. All exclusions that were configured at the vApp level prior to this version, must be manually ported/ distributed at the policy level by the user.

- Policies must be associated with the vApp to set up exclusions at the policy level for this vApp.

Input parameters
Consume media type(s):
vappBackupExcludeLists+xml

Input type:
VappBackupExcludeLists

Output parameters
VappBackupExcludeLists+xml

Example
PUT /api/vApp/7/backupexcludelist

Example request

```
<VappBackupExcludeLists>
     <VappBackupExcludeList excludeallvms="false" policyId=”33”>
        <VmExclude excludealldisks="true" href="https://
vcloud.example.com/api/vApp/vm-4"/>
        <VmExclude excludealldisks="false" href="https://
vcloud.example.com/api/vApp/vm-5">
            <DiskExclude addressofparent="2" diskinstanceid="2000"/>
            <DiskExclude addressofparent="2" diskinstanceid="2001"/>
        </VmExclude>
    </VappBackupExcludeList>
     <VappBackupExcludeList excludeallvms="false" policyId=”99”>
        <VmExclude excludealldisks="false" href="https://
vcloud.example.com/api/vApp/vm-4"/>
        <VmExclude excludealldisks="false" href="https://
vcloud.example.com/api/vApp/vm-5">
            <DiskExclude addressofparent="2" diskinstanceid="2000"/>
        </VmExclude>
    </VappBackupExcludeList>
</VappBackupExcludeLists>
```

Example response

```
200 OK

<VappBackupExcludeLists>
     <VappBackupExcludeList excludeallvms="false" policyId=”33”>
        <VmExclude excludealldisks="true" href="https://
vcloud.example.com/api/vApp/vm-4"/>
        <VmExclude excludealldisks="false" href="https://
vcloud.example.com/api/vApp/vm-5">
            <DiskExclude addressofparent="2" diskinstanceid="2000"/>
            <DiskExclude addressofparent="2" diskinstanceid="2001"/>
        </VmExclude>
    </VappBackupExcludeList>
     <VappBackupExcludeList excludeallvms="false" policyId=”99”>
        <VmExclude excludealldisks="false" href="https://
vcloud.example.com/api/vApp/vm-4"/>
        <VmExclude excludealldisks="false" href="https://
vcloud.example.com/api/vApp/vm-5">
            <DiskExclude addressofparent="2" diskinstanceid="2000"/>
        </VmExclude>
    </VappBackupExcludeList>
</VappBackupExcludeLists>
```

Get a Backup Exclude List for a vApp

API version
1.0

Operation
GET /api/vApp/vapp-{id}/backupexcludelist

Description
Get exclude list for a vApp. The exclude list is a list of excluded VMs and disks for a vApp. This list is used for ad-hoc backup on the vApp.

Input parameters
None

Output parameters
Produce media type(s):
VappBackupExcludeList+xml

Output type:
VappBackupExcludeListType

Example request

```
GET /api/vApp/7/backupexcludelist
```

Example response

```
200 OK
Content-Type: VappBackupExcludeList+xml

<VappBackupExcludeList excludeallvms="false">
        <VmExclude excludealldisks="true" href="https://
vcloud.example.com/api/vApp/vm-1"/>
        <VmExclude excludealldisks="false" href="https://
vcloud.example.com/api/vApp/vm-2">
            <DiskExclude addressofparent="0" diskinstanceid="2000"/
>
        </VmExclude>
</VappBackupExcludeList>
```

Get Backup Exclude Lists for a vApp

API version
2.0

Operation
GET /api/vApp/vapp-{id}/backupexcludelist

Description
Get list of backup exclude lists for a vApp. Each exclude list within the list, is a list of excluded VMs and disks for a particular policy that is attached to the vApp. This list is used for ad-hoc or scheduled backup on the vApp, when run with the specified policy.

Input parameters
None

Output parameters
Produce media type(s):
VappBackupExcludeLists+xml

Output type:
VappBackupExcludeListsType

Example request

```
GET /api/vApp/7/backupexcludelist
```

Example response

```
200 OK
Content-Type: VappBackupExcludeList+xml

<VappBackupExcludeLists>
     <VappBackupExcludeList excludeallvms="false" policyId=”33”>
        <VmExclude excludealldisks="true" href="https://
vcloud.example.com/api/vApp/vm-4"/>
        <VmExclude excludealldisks="false" href="https://
vcloud.example.com/api/vApp/vm-5">
            <DiskExclude addressofparent="2" diskinstanceid="2000"/>
            <DiskExclude addressofparent="2" diskinstanceid="2001"/>
        </VmExclude>
    </VappBackupExcludeList>
     <VappBackupExcludeList excludeallvms="false" policyId=”99”>
        <VmExclude excludealldisks="false" href="https://
vcloud.example.com/api/vApp/vm-4"/>
        <VmExclude excludealldisks="false" href="https://
vcloud.example.com/api/vApp/vm-5">
            <DiskExclude addressofparent="2" diskinstanceid="2000"/>
        </VmExclude>
    </VappBackupExcludeList>
</VappBackupExcludeLists>
```

Delete Backup Exclude Lists for a vApp

API version
2.0

Operation
DELETE /api/vApp/vapp-{id}/backupexcludelist

Description
Delete the backup exclude list for a vApp.

Input parameters
None

Output parameters
None

Example request

```
DELETE /api/vApp/7/backupexcludelist
```

Example response

```
204 No Content
```

Trigger ad hoc restore to a newly created vApp

This function is used to restore a vApp backup to a newly created vApp. Use the function in these circumstances:

- The original vApp has been deleted.
- The original vApp is still present, but you want to create a second vApp, based on a vApp backup.

Only a vCD SA or a vCD OA can run this operation.

The input to this operation requires a reference to a particular backup to restore.

Consider the following:

- If the backup is associated with a vApp that still exists in the cloud, this reference is typically obtained by using this operation, which lists the available backups that are associated with an existing vApp, in the active backup repository:

  GET /api/vApp/vapp-*{{id}}*/backups
- If the backup is associated with a vApp that has been deleted from the cloud, obtain this reference by using this operation, which queries the backups available in a backup repository, with various available search filters:

  GET /api/admin/extension/EmcBackupService/backupRepository/*{{id}}*/query?type=backup&vappguid=*{{guid}}*

  The newly created vApp automatically inherits the default lease settings of the containing organization. After the restore completes, these settings can be changed through the standard vCloud Director API, if necessary.
- If the `RestoreMetadata` element in the `RestoreToNewVappParams` is `true`, this operation automatically restores the vApp metadata. However, the operation does not automatically restore vApp configuration. Automatic restore of vApp network configuration from a backup could cause undesirable side effects that include: duplicate MAC addresses, duplicate IP addresses, and VMs with "orphaned" network connections to vCloud networks that are no longer present.

  The restored vApp is configured with the same policies that were attached to the original or source vApp, if those policies are still available and valid. If there were VM and/or disk exclusions that are configured with policies of the original vApp, they are also ported over to the new vApp Policies.

Operation
POST /api/admin/extension/EmcBackupService/backupRepository/*{{id}}*

Description
Triggers an ad hoc creation of a new vApp from a backup.

Input parameters
Consume media types:
restoreToNewVappParams+xml

Output type:
RestoreToNewVappParamsType

Output parameters
Produce media types:
task+xml

Output type:
TaskType

Example request

```
POST /api/admin/extension/EmcBackupService/backupRepository/22
Content-Type: restoreToNewVappParams+xml

<RestoreToNewVappParams
    name=”MyNewVappsName”>
    <Description>”Description of my new vApp”</Description>
    <Owner type="application/vnd.vmware.vcloud.owner+xml">
    <User type="application/vnd.vmware.admin.user+xml" name="owner
name" href="https://10.25.85.50/api/admin/user/
242ce760-0cc7-4cd0-86f7-add4523c770b"/>
    </Owner>
    <LeaseSettingsSection type="application/
vnd.vmware.vcloud.leaseSettingsSection+xml" >
    <DeploymentLeaseInSeconds>0</DeploymentLeaseInSeconds>
    <StorageLeaseInSeconds>0</StorageLeaseInSeconds>
    </LeaseSettingsSection>
```

```
    <RestoreMetadata>true</RestoreMetadata>
    <Source
        href=https://vcloud.example.com/EmcBackupService/
backupRepository/22/backups?
vcloudguid=3f79780c-6b0&orgguid=5f69730d-640&vappguid=1e797301-78a&seq
num=29/>
    <VmBackupList>
        <VmBackup
            include="true"
            href="https://vcloud.example.com/api/vApp/vm-4"
            name="ubuntu10-x86">
            <Disk
                include="true"
                controllerinstanceid="2"
                capacity="10240"
                storageprofile=”44”
                diskname="Hard disk 1"
                diskinstanceid="2000"
                addressofparent=”0”
                addressonparent=”0” />
        </VmBackup>
        <VmBackup
            include="true"
            href="https://vcloud.example.com/api/vApp/vm-5"
            name="ubuntu10-x64">
            <Disk
                include="false"
                controllerinstanceid="2"
                capacity="10240"
                storageprofile=”44”
                diskname="Hard disk 1"
                diskinstanceid="2000"
                addressofparent=”0”
                addressonparent=”0” />
            <Disk
                include="true"
                controllerinstanceid="2"
                capacity="20480"
                storageprofile=”44”
                diskname="Hard disk 2"
                diskinstanceid="2001"
                addressofparent=”0”
                addressonparent=”1” />
        </VmBackup>
        <VmBackup
            include="false"
            href="https://vcloud.example.com/api/vApp/vm-6"
            name="windows2008-x86">
            <Disk
                include="true"
                controllerinstanceid="2"
                capacity="10240"
                storageprofile=”44” diskname="Hard disk 1"
                diskinstanceid="2000"
                addressofparent=”0”
                addressonparent=”0” />
        </VmBackup>
    </VmBackupList>
</RestoreToNewVappParams>
```

Example response

```
202 Accepted
Content-Type: task+xml

<Task status="running">
    <Owner
        type="backup+xml"
        name="Internet"
        href="https://vcloud.example.com/api/vApp/7/backup/123" />
</Task>
```

Trigger an ad-hoc restore of an existing vApp from specific backup

This operation triggers a restore of an existing, powered off, vApp, overwriting the current state of the vApp (rollback).

VMs could have been excluded from the original backup, and the caller has the option to exclude additional VMs. If a VM is excluded, either because it was not in the original backup, or because the caller to this restore operation opted to exclude the VM, the VM is deleted from the vApp during the restore process.

The process of restoring a VM destroy and recreate the VM if the current VM disk configuration does not match the disk configuration at the time of backup. If a virtual disk is excluded from the restore, the virtual disk content will not be recovered, but after the restore, the disk will be present, with undetermined content.

It is expected that the required parameter which specifies the VMs and virtual disks to be restored (or excluded from restore), would be based on the output (or edited output) of a prior call to the operation:

GET /api/vApp/vapp-{id}/backup/{id}

Operation
POST /api/vApp/vapp-{id}/backup/{id}

Description
Triggers an ad-hoc restore of a vApp.

Input parameters
Consume media type(s):
restoreToOriginalParams+xml

Input type:
RestoreToOriginalParamsType

Output parameters
Produce media type(s):
task+xml

Output type:
TaskType

Example request

```
POST /api/vApp/7/backup/123
Content-Type: restoreToOriginalParams+xml

<RestorevAppToOriginalParams
”
    RetainExcludedVms=”false”
    DelayVMDeletion=”false”>
    <VmBackupList>
        <VmBackup
            include="true"
            href="https://vcloud.example.com/api/vApp/vm-4"
            name="ubuntu10-x86">
            <Disk
                include="true"
                controllerinstanceid="2"
                capacity="10240"
                storageprofile=”44”
                diskname="Hard disk 1"
                diskinstanceid="2000"
```

```
                addressofparent="0"
                addressonparent="0" />
        </VmBackup>
        <VmBackup
            include="true"
            href="https://vcloud.example.com/api/vApp/vm-5"
            name="ubuntu10-x64">
            <Disk
                include="false"
                controllerinstanceid="2"
                capacity="10240"
                storageprofile="44"
                diskname="Hard disk 1"
                diskinstanceid="2000"
                addressofparent="0"
                addressonparent="0" />
            <Disk
                include="true"
                controllerinstanceid="2"
                capacity="20480"
                storageprofile="44"
                diskname="Hard disk 2"
                diskinstanceid="2001"
                addressofparent="0"
                addressonparent="1" />
        </VmBackup>
        <VmBackup
            include="false"
            href="https://vcloud.example.com/api/vApp/vm-6"
            name="windows2008-x86">
            <Disk
                include="true"
                controllerinstanceid="2"
                capacity="10240"
                storageprofile="44"
                diskname="Hard disk 1"
                diskinstanceid="2000"
                addressofparent="0"
                addressonparent="0" />
        </VmBackup>
    </VmBackupList>
</RestorevAppToOriginalParams >
```

Example response

```
202 Accepted
Content-Type: task+xml

<Task status="running">
    <Owner
        type="backup+xml"
        name="Internet"
        href="https://vcloud.example.com/api/vApp/7/backup/123" />
</Task>
```

Trigger an ad-hoc restore of a single VM within a vApp backup into the original, and still existing vApp

This operation triggers a restore of a single VM into an existing, powered off, vApp. The vApp must be the same vApp that contained the VM at the time of the backup.

This operation is intended to simply "roll back" the disk content of an existing VM, or to recreate a deleted VM. This operation does not restore any vApp configuration.

When rolling back an existing VM, or recreating a deleted VM, there can be no assurance that the VM is compatible with the existing network configuration in the vApp and the vDC.

It is not required that the vApp still contains the VM at the time of this operation is invoked. However, if the vApp does still contain the VM, and the VM's disk configuration has changed since the time of backup, this operation is not supported. If the number of disks, or size of any disk is different, whether the disk is being restored, or not, this constitutes a disk configuration change. To recover a VM with a disk configuration change, the VM can be deleted prior to invoking this operation.

The process of restoring a VM results in a disk configuration that matches the VM's disk configuration at the time of backup. If a virtual disk is excluded from the restore, the virtual disk content will not be recovered, but after the restore, the disk will be present, with undetermined content.

It is expected that the required parameter which specifies the VM and virtual disks to be restored, would be based on the output (with optional modifications) of a prior call to the operation: GET /api/vApp/vapp-{id}/backup/{id}

Only a single VM at a time may be selected for restoration by this operation. Selecting multiple VMs in a single call to this operation is invalid.

Operation
POST /api/vApp/vapp-{id}/backup/{id}

Description
Triggers an ad-hoc restore of a vApp.

Input parameters
Consume media type(s):
restoreToOriginalParams+xml

Input type:
RestoreToOriginalParamsType

Output parameters
Produce media type(s):
task+xml

Output type:
TaskType

Example request

```
POST /api/vApp/7/backup/123
Content-Type: restoreToOriginalParams+xml

<RestoreVmToOriginalvAppParams
    RecoverVmToVsphereOnly=”false”
    RecoverVmConfiguration=”true” >
    <VmBackupList>
        <VmBackup
            include="true"
            href="https://vcloud.example.com/api/vApp/vm-4"
            name="ubuntu10-x86">
            <Disk
                include="true"
                controllerinstanceid="2"
                capacity="10240"
                storageprofile=”44”
                diskname="Hard disk 1"
                diskinstanceid="2000"
                addressofparent=”0”
                addressonparent=”0” />
        </VmBackup>
    </VmBackupList>
</RestoreVmToOriginalvAppParams >
```

Example response

```
202 Accepted
Content-Type: task+xml

<Task status="running">
    <Owner
        type="backup+xml"
        name="Internet"
        href="https://vcloud.example.com/api/vApp/7/backup/123" />
</Task>
```

List vApp related backup activities in past 48 hours

This is intended to be an end user (vApp owner) enabled resource, so some aspects of activity related information are intentionally excluded, such as identification of backing resources. The alternate interfaces on backup appliances and backup repositories can be used by administrators to get more visibility.

Operation
GET /api/vApp/vapp-{id}/backups/query?type=activity

Description
Get list of recent and current backup and restore jobs in the backup repository.

Input parameters
None

Output parameters
Produce media type(s):
QueryResultList+xml

Output type:
QueryResultList

Example request

```
GET /api/vApp/7/backups/query?type=activity
```

Example response

```
200 OK
Content-Type: QueryResultList+xml

<QueryResultList>
    <ActivityRef
        type="backup"
        state="running"
        status=""
        startedby="schedule"
        schedulename="Gold SLA Pacific timezone"
        retentionname="Gold SLA"
        errors="0"
        warnings="1"
        starttime="2012-011-02T13:09:00"
        endtime=""
        effectiveretention="2019-011-03T13:00:00"
        bytesprocessed="12000000000"
        newbytesprocessed="50000"
        vApp-href="https://vcloud.example.com/api/vApp/7"
        backup-href="https://vcloud.example.com/api/vApp/7/backup/124"
        task-href="https://vcloud.example.com/api/task/196" />
    <ActivityRef
        type="backup"
        state="completed"
        status="success"
        startedby="adhoc"
```

```
        schedulename=""
        retentionname="Gold SLA"
        errors="0"
        warnings="0"
        starttime="2012-010-02T13:09:00"
        endtime="2012-010-02T13:09:02"
        effectiveretention="2019-010-03T13:00:00"
        bytesprocessed="12000000000"
        newbytesprocessed="50000"
        vApp-href="https://vcloud.example.com/api/vApp/7"
        backup-href="https://vcloud.example.com/api/vApp/7/backup/123"
        task-href="" />
</QueryResultList>
```

List backup storage/new bytes for a vApp

This is intended to be an end user (vApp owner) enabled resource, so some aspects of vApp statistics are intentionally excluded, such as those that might identify backing resources. The alternate interfaces on backup appliances and backup repositories can be used by administrators to get more visibility.

Operation
GET /api/vApp/vapp-{id}/backups/query?type=stats

Description
Get statistics related to backup activity for a vApp in the active backup repository.

Input parameters
None

Output parameters
Produce media type(s):
QueryResultList+xml

Output type:
QueryResultList

Example request

```
GET /api/vApp/7/backups/query?type=stats
```

Example response

```
200 OK
Content-Type: QueryResultList+xml

<QueryResultList>
    <vAppStats
        type="vApp"
        href="https://vcloud.example.com/api/vApp/7"
        backupcount="26"
        defaultbackuppolicyengaged="true"
        defaultreplicationpolicyengaged="true"
        lastsuccessfulbackup="2012-11-01T13:09:00"
        nextscheduledbackup="2012-11-02T13:09:00"
        nextscheduledreplication=""
        primarybytesprotected="12000000000"
        lastbackupnewbytes="50000"
        adhocbackupenabled="true" />
</QueryResultList>
```

Cancel a running vApp initiated ad-hoc backup

Operation
POST /api/task/{id}/action/cancel

Description
Cancel a running vApp initiated ad-hoc backup. The REST API operation which initiates an ad-hoc backup returns a standard vCloud task identifier. Invoking this operation on the task cancels the backup.

Input parameters
None

Output parameters
None

Example request

```
POST /api/task/457/action/cancel
```

Example response

```
204 No Content
```

CHAPTER 12

File level restore extensions to vCloud VM objects

This section includes the following topics.

File level restore extensions to vCloud VM objects

The following extensions are available for restoring folders and files from a source VM of a vApp backup to a destination VM. The destination VM could be the same VM as the source. The destination VM must be powered on and has VMware Tools that are installed. Also sufficient credentials is required to restore files to the destination VM.

The process of file level restore consists of three steps:

1. Browse folders in the source VM and select folders and files.
2. Browse folders in the destination VM and select on.
3. Restore selected folders and files from the source VM to selected folder in the destination VM.

Connect source VM

Operation
POST /api/vApp/vapp-{id}/backup/{id}/vm/vm-{id}/connections

Description
This method is used to create a connection to source VM for browsing purpose. The connection is pre-requisite for browsing folders and files in source VM, disconnecting from source VM, and restoring folders and files to destination VM.

Input parameters
Consume media type(s):
flrVmConnectionParams+xml

Input type:
flrVmConnectionParams

Output parameters
Produce media type(s):
flrVmConnection+xml

Output type:
FlrVmConnection

Example request

```
POST /api/vApp/vapp-e75dd933-02e7-42aa-9289-03f72e6828f8/backup/12/vm/
vm-7a8b5c8b-b3b4-4ab8-a0d1-ffc7bd879cf/connections

<FlrVmConnectionParams vCloudLocator=''/>
```

Example response

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<FlrVmConnection id='3b9c01ee-442d-49d7-90c4- b6897799387e'>
<Task xmlns="http://www.vmware.com/vcloud/v1.5" href="https://vc-
vcd1.brsvirtdev.com/api/task/c19c64bd-9157-4e14-a832-f87ffcdafabc"
id="urn:vcloud:task:c19c64bd-9157-4e14-a832-f87ffcdafabc" name="task"
type="application/vnd.vmware.vcloud.task+xml" status="queued"
operation="Connecting source VM for Virtual Machine
(5a63b9d5-507d-4566-92e6-93d521b0438b)" operationName="connectVM"
serviceNamespace="com.emc.vcp.backup"
startTime="2015-07-29T16:52:08.952-04:00" ex-
piryTime="2015-10-27T16:52:08.952-04:00" cancelRequested="false">
    <Owner name="Mixed2" type="application/vnd.vmware.vcloud.vApp
+xml" href="https://vc-vcd1.brsvirtdev.com/api/vApp/
vapp-8203382f-76c1-4970-b8f6-b6897799387e"/>
    <User name="administrator" type="application/vnd.vmware.admin.user
```

```
+xml" href="https://vc-vcd1.brsvirtdev.com/api/admin/user/
24d712e3-7fa7-4105-98f2-683117bcf873"/>
    <Organization name="Heroes" type="application/
vnd.vmware.vcloud.org+xml" href="https://vc-
vcd1.brsvirtdev.com/api/org/3b9c01ee-442d-49d7-90c4-f257e2438271"/>
    <Progress>0</Progress>
    <Details></Details>
</Task>
</FlrVmConnection>
```

Disconnect source VM

Operation
DELETE /api/vApp/vapp-{id}/backup/{id}/vm/vm-{id}/connections/{id}

Description
This method is used to disconnect from source VM, which should be called after the connection is no longer needed.

Input parameters
None

Output parameters
None

Example request

```
DELETE /api/vApp/vapp-e75dd933-02e7-42aa-9289-03f72e6828f8/
backup/12/vm/vm-7a8b5c8b-b3b4-4ab8-a0d1-ffc7bd879cf/
connections/’3b9c01ee-442d-49d7-90c4- b6897799387e
```

Example response

```
200 OK
```

Browse folders and files in source VM

Operation
GET /api/vApp/vapp-{id}/backup/{id}/vm/vm-{id}/files?
path={path}&connectionId={connectionId}

Description
Get a list of folders and a list of files, which are direct children of the specified parent path. Path is UTF-8 URL encoded and should be set as empty when this call is used to get disk list of source VM.

Input parameters
None

Output parameters
Produce media type(s):
flrSourceBrowseResult+xml

Output type:
FlrSourceBrowseResult

Example request

```
GET /api/vApp/vapp-e75dd933-02e7-42aa-9289-03f72e6828f8/backup/12/vm/
7vm-a8b5c8b-b3b4-4ab8-a0d1-ffc7bd879cf/files?path=%5BDisk
%231%5D&connectionId=3b9c01ee-442d-49d7-90c4- b6897799387e
```

Example response

```
<FlrBrowseResult path='[Disk#1]'>
     <Folders>
        <Folder date="2015-08-06 00:33:11" name="$Recycle.Bin"
size="0"/>
        <Folder date="2009-07-14 03:20:08" name="PerfLogs" size="0"/>
        <Folder date="2015-07-20 23:46:30" name="Program Files"
size="4096"/>
        <Folder date="2015-02-11 00:32:27" name="Program Files (x86)"
size="4096"/>
        <Folder date="2015-02-11 00:23:23" name="ProgramData"
size="4096"/>
        <Folder date="2014-03-12 16:39:55" name="Recovery" size="0"/>
        <Folder date="2014-03-13 07:31:28" name="System Volume
Information" size="4096"/>
        <Folder date="2015-08-06 00:33:10" name="Users" size="4096"/>
        <Folder date="2015-07-23 21:51:35" name="Windows"
size="16384"/>
    </Folders>
    <Files>
        <File date="2015-07-27 18:20:14" name="pagefile.sys"
size="34359271424"/>
    </Files>
</FlrBrowseResult>
```

Connect destination VM

Operation
POST /api/vApp/vapp-{id}/vm/vm-{id}/connections

Description
This method is used to create a connection to destination VM for browsing. The connection is pre-requisite for browsing folders in destination VM, disconnecting from destination VM, and restoring folders and files to destination VM.

Input parameters
Consume media type(s):
flrVmConnectionParams+xml

Input type:
FlrVmConnectionParams

Output parameters
Produce media type(s):
flrVmConnection+xml

Output type:
FlrVmConnection

Example request

```
POST /api/vApp/vapp-e75dd933-02e7-42aa-9289-03f72e6828f8/backup/12/vm/
vm-7a8b5c8b-b3b4-4ab8-a0d1-ffc7bd879cf/connections

<FlrVmConnectionParams vCloudLocator='' userName='Administrator'
password='VMware1!' />
```

Example response

```
200 OK
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<FlrVmConnection id='3b9c01ee-442d-49d7-90c4-b6897799387e'/>
```

Disconnect destination VM

Operation
DELETE /api/vApp/vapp-{id}/vm/vm-{id}/connections/{id}

Description
This method is used to disconnect from destination VM, which should be called after the connection is no longer needed.

Input parameters
None

Output parameters
None

Example request

```
DELETE /api/vApp/vapp-e75dd933-02e7-42aa-9289-03f72e6828f8/
backup/12/vm/vm-7a8b5c8b-b3b4-4ab8-a0d1-ffc7bd879cf/connections/
3b9c01ee-442d-49d7-90c4-b6897799387e
```

Example response

```
204 No Content
```

Browse folders in destination VM

Operation
GET /api/vApp/vapp-{id}/vm/vm-{id}/files?
path={path}&connectionId={connectionId}

Description
Get a list of folders, which are direct children of given parent path. The path is UTF-8 URL encoded and should be set as empty when this call is used to get disk list of destination VM. The connectionId is obtained from connecting destination VM.

Input parameters
None

Output parameters
Produce media type(s):
flrDestinationBrowseResult+xml

Output type:
FlrDestinationBrowseResult

Example request

```
POST /api/vApp/vapp-e75dd933-02e7-42aa-9289-03f72e6828f8/backup/12/vm/
vm-7a8b5c8b-b3b4-4ab8-a0d1-ffc7bd879cf/connections

<FlrVmConnectionParams vCloudLocator='' userName='Administrator'
password='VMware1!' />
```

Example response

```
200 OK
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<FlrVmConnection id='3b9c01ee-442d-49d7-90c4-b6897799387e'/>
```

CHAPTER 13

Recovering vApps and VMs

This section includes the following topics:

Recover vApps and VMs

Examples of retrieving backup content in this document demonstrate doing this from a backup repository in this general form:

```
GET /api/admin/extension/EmcBackupService/backupRepository/{repo-id}/
backups?vcloudguid={cloud-id}&orgguid={org-id}&vappguid={vapp-
id}&seqnum={backup-id}&content={content-type}
```

If the vApp is still present in the vCloud, this same content can also be retrieved through the vApp object. This is done using this form:

```
GET /api/vApp/{vapp-id}/backup/{backup-id}/{content-type}
```

vApp characteristics captured in a backup

A deployed vApp has various characteristics and configurable settings that are captured during a backup.

Table 29 vApp characteristics captured in a backup

Item	Recorded In backup	Recoverable	Automatically restored
Lease settings	Yes	Yes	No[a]
Startup Section	Yes	Yes	No
Network Config Section	Yes	Yes	No
Owner	Yes	Yes	No [b]
ControlAccess	Yes	Yes	No
Metadata	Yes	Yes	Yes/No[c]
Snapshot Description	Yes	No	No
Date Created	Yes	No	No
vApp Name	Yes	Possibly[d]	No[e]
vApp Description	Yes	Yes	No
ProductSection	Yes[f]	Yes	No

a. A LeaseSettingSection is a parameter on a restore to new operation. This can be the original setting or a completely new lease setting.
b. An Owner is a parameter on a restore to new operation. This setting can be the original owner or a completely new owner
c. Yes on restore to new, no on restore to original (rollback).
d. In a vApp restore to new, recovering the original vApp name is possible only if the name is no longer in use.
e. A vApp name is a parameter on a restore to new operation. This can be set to the original vApp name, if the name is not in use.
f. ProductSection is not present in all vApps, but is captured if it is present.

LeaseSettingsSection

Defines the terms of storage and deployment leases for the vApp.

If this section is omitted, the vApp inherits the default lease settings of the containing organization. The vApp backup process records the lease setting to allow recovery of the original configuration. This recovery is not performed automatically because it is likely that the current value of the lease setting is either identical to the original, or has been modified for a reason that still pertains at the time of recovery. It is also entirely possible that the historical lease setting is set to a value that expired in the past.

- Captured in backup. Available for recovery by a provider or Org Admin using the procedure described below, which includes using two additional REST API calls when a LeaseSetting recovery is desired.
- Not automatically restored in rollback.
- Not automatically restored in restore to new. During a restore to new, a LeaseSettingsSection is passed as a parameter. This can be a copy of the original setting that is contained in the backup, or a newly created value.

If lease setting recovery is desired in a rollback restore, an optional two step procedure is available to accomplish this. For a restore to new, only the first of the two steps would be used.

Optional LeaseSettings recovery procedure

A vCloud Director REST API call is provided to set a vApp's lease. It takes a LeaseSettingsSection element, as a parameter passed in the request body.

The original LeaseSettingSection element can be recovered from a backup using a GET operation:

1. Retrieve original from a specific backup with:

   GET /api/admin/extension/EmcBackupService/backupRepository/22/backups?vcloudguid=3f79780c-6b0&orgguid=5f69730d-640&vappguid=1e797301-78a&seqnum=29&content=vappconfigcollection

   Returns content including a LeaseSettingsSection, similar to this example:

   ```
   <LeaseSettingsSection
   type="application/vnd.vmware.vcloud.leaseSettingsSection+xml"
   href="https://10.6.246.107/api/vApp/vapp-61c11bbb-ecac-40e7-bb17-
   e254cc0550e8/leaseSettingsSection/"
   ovf:required="false">
   <ovf:Info>Lease settings section</ovf:Info>
   <Link rel="edit"
   type="application/vnd.vmware.vcloud.leaseSettingsSection+xml"
   href="https://10.6.246.107/api/vApp/vapp-61c11bbb-ecac-40e7-bb17-
   e254cc0550e8/leaseSettingsSection/"/>

   <DeploymentLeaseInSeconds>604800</DeploymentLeaseInSeconds>

   <StorageLeaseInSeconds>2592000</StorageLeaseInSeconds>

   <StorageLeaseExpiration>2013-05-21T15:01:25.927-07:00</
   StorageLeaseExpiration>

   </LeaseSettingsSection>
   ```

2. Validate and manipulate as required.

3. Reapply with vCloud Director API like this example:

```
PUT /vApp/vapp-{id}/leaseSettingsSection
```

With LeaseSettings XML in request body, returns a task.

Detailed vCloud Director documentation for updating lease settings is available here:

http://pubs.vmware.com/vcd-51/index.jsp?topic=%2Fcom.vmware.vcloud.api.reference.doc_51%2Fdoc%2Foperations%2FPUT-LeaseSettingsSection-vApp.html

StartupSection

This element, if present, specifies a start order and related properties for each member of a vApp. If the element is not present, all members are started up at the same time. The same logic applies to shutdown, reboot, and similar operations.

- Captured in backup. Available for recovery by a provider or Org Admin.
- Not automatically restored in rollback.
- Not automatically restored in restore to new.

If startup order recovery is desired, an optional two step procedure is provided to accomplish this.

Optional LeaseSettings recovery procedure

A vCloud Director REST API call is provided to set a vApp's internal startup order. It takes a StartupSection element, as a parameter passed in the request body.

The original StartupSection element can be recovered from a backup using a GET operation.

1. Retrieve original from a specific backup with:
   GET /api/admin/extension/EmcBackupService/backupRepository/22/backups?vcloudguid=3f79780c-6b0&orgguid=5f69730d-640&vappguid=1e797301-78a&seqnum=29&content=vappconfigcollection

   Returns content including a LeaseSettingsSection, similar to this example:

```
ovf:StartupSection xmlns:ns12="http://www.vmware.com/vcloud/v1.5"
ns12:href="https://10.6.246.107/api/vApp/vapp-61c11bbb-ecac-40e7-
bb17-e254cc0550e8/startupSection/" ns12:type="application/
vnd.vmware.vcloud.startupSection+xml">
<ovf:Info>VApp startup section</ovf:Info>
<ovf:Item ovf:stopDelay="20" ovf:stopAction="guestShutdown"
ovf:startDelay="10" ovf:startAction="none" ovf:order="2"
ovf:id="SLES11"/>
<ovf:Item ovf:stopDelay="10" ovf:stopAction="powerOff"
ovf:startDelay="5" ovf:startAction="powerOn" ovf:order="1"
ovf:id="SLES11-1"/>
<Link rel="edit" type="application/vnd.vmware.vcloud.startupSection
+xml" href="https://10.6.246.107/api/vApp/vapp-61c11bbb-ecac-40e7-
bb17-e254cc0550e8/startupSection/"/>
</ovf:StartupSection>
```

2. Validate and manipulate as required.
3. Reapply with vCloud Director API like this example:

```
PUT /api/vApp/vapp-{vappid}/startupSection/
```

With StartupSection XML in request body, returns a task.

NetworkConfigSection

Defines the properties of the vApp network and specifies how it is connected to a network in the VDC. When a vApp is recovered to a prior state, or when a vApp is restored to a new vApp, there is a possibility of network address collisions, as well as "orphaned" connection definitions that reference networks that no longer exist. Because of these issues, the NetworkConfigSection is not automatically restored. The NetworkConfigSection is recorded in the backup in a form directly usable by the vCloud Director REST API. This allows for examination and manipulation of the vApp's network settings before re-application.

Unless a vApp has no virtual machines are connected to a network, the vApp definition must include at least one NetworkConfigSection that defines a vApp network. That section must include a NetworkConfig element whose networkName attribute value matches the value of the network attribute of the NetworkConnection of each VM in the vApp. If this attribute has the value none or is missing, VMs can connect to any network. If the vApp contains VM elements that specify different names for their network connections, the vApp must have a vApp network for each.

- Captured in backup. Available for recovery by a provider or Org Admin.
- Not automatically restored in rollback. The original vApp network is preserved. This procedures can be used for optional recovery.
- Not automatically restored in restore to new. The vApp is created with no vApp network definition. This procedures can be used for optional recovery.

When a vApp is recovered to a prior state, or when a vApp is restored to a new vApp, there is a possibility of network address collisions, as well as "orphaned" connection definitions, that reference networks that no longer exist. Because of these issues, the NetworkConfigSection is not automatically restored. The NetworkConfigSection is recorded in the backup in a form directly usable by the vCloud Director REST API. This allows for examination and manipulation of the vApp's network settings before re-application. On a vApp rollback restore, this also allows the flexibility of retaining the current network settings, if this is more suitable than a network configuration rollback.

Optional NetworkConfigSection recovery procedure

1. Retrieve original from backup repository with:
   GET /api/admin/extension/EmcBackupService/backupRepository/22/backups?vcloudguid=3f79780c-6b0&orgguid=5f69730d-640&vappguid=1e797301-78a&seqnum=29&content=vappconfigcollection

   Returns content including a NetworkConfigSection, similar to this example:

```
<NetworkConfigSection type="application/
vnd.vmware.vcloud.networkConfigSection+xml" href="https://
10.6.246.107/api/vApp/vapp-61c11bbb-ecac-40e7-bb17-e254cc0550e8/
networkConfigSection/" ovf:required="false">
<ovf:Info>The configuration parameters for logical networks</
ovf:Info>
<Link rel="edit" type="application/
vnd.vmware.vcloud.networkConfigSection+xml" href="https://
10.6.246.107/api/vApp/vapp-61c11bbb-ecac-40e7-bb17-e254cc0550e8/
networkConfigSection/"/>
<NetworkConfig networkName="none">
<Description>This is a special place-holder used for disconnected
```

```
network interfac-es.</Description>
<Configuration>
<IpScopes>
<IpScope>
<IsInherited>false</IsInherited>
<Gateway>196.254.254.254</Gateway>
<Netmask>255.255.0.0</Netmask>
<Dns1>196.254.254.254</Dns1>
</IpScope>
</IpScopes>
<FenceMode>isolated</FenceMode>
</Configuration>
<IsDeployed>false</IsDeployed>
</NetworkConfig>
</NetworkConfigSection>
```

2. Validate and manipulate as required.
3. Reapply with vCloud Director API like this example:

   ```
   PUT /api/vApp/vApp-{vappid}/networkConfigSection/
   ```

   With NetworkConfigSection XML in request body, returns a task.

   Detailed documentation of the vCloud Director API for updating network configuration is available here:

   http://pubs.vmware.com/vcd-51/topic/com.vmware.vcloud.api.doc_51/GUID-92622A15-E588-4FA1-92DA-A22A4757F2A0.html

Owner

The initial owner of a VApp is the user who created it. Ownership is expressed in an Owner element that the object representation contains. This element includes a User element that references the owner.

The vCloud Director API allows altering the ownership of a vApp. A rollback restore will not automatically restore the owner that was recorded at the time of backup. If the owner has changed, it is likely that the ownership modification was performed for a reason that still pertains. It is also possible that the historical owner account no longer exists.

- Captured in backup. Available for recovery by a provider or Org Admin using the procedure described below, which includes using two additional REST API calls when an ownership recovery is desired.
- Not automatically restored in rollback.
- During a restore to new, an Owner is passed as a parameter. This can be a copy of the original setting that is contained in the backup, or a newly created value.

If ownership recovery is desired in a rollback restore, an optional two step procedure is provided to accomplish this. The first of these two steps can be used during a restore to new to recover the original owner setting.

Optional Owner recovery procedure

A vCloud Director REST API call is provided to set a vApp's owner. It takes an Owner element, as a parameter passed in the request body. The original Owner element can be recovered from a backup using a GET operation.

1. Retrieve original from backup repository with:
   GET /api/admin/extension/EmcBackupService/backupRepository/22/backups?

vcloudguid=3f79780c-6b0&orgguid=5f69730d-640&vappguid=1e797301-78a&seqnum=29&content=vappconfigcollection

Returns content including an Owner element like this example, similar to this example:

```
<Owner
xmlns="http://www.vmware.com/vcloud/v1.5">
<User
type="application/vnd.vmware.admin.user+xml"
href="https://vcloud.example.com/api/admin/user/120" />
</Owner>
```

2. Validate and manipulate as required.
3. Reapply with vCloud Director API like this example:

```
PUT https://vcloud.example.com/api/vApp/vapp-7/owner>
```

With Owner XML in request body.

vApp Metadata

The vCloud API provides a general-purpose facility for associating user-defined metadata with a vApp, and with individual VMs contained within a vApp.

vCloud Director maintains two classes of metadata: GENERAL and SYSTEM. A vApp owner can access GENERAL metadata. Only a provider Admin can access SYSTEM metadata. Both classes of metadata are recorded in a vApp backup.

The REST API operations that initiate a restore to new vApp allow opting out of metadata restore, but it is expected that in almost all restore to new vApp scenarios, a caller would opt to restore metadata. The metadata restore election applies to all metadata, SYSTEM and GENERAL, as well as both vApp and VM metadata. There is no mechanism to select granular control over metadata recovery.

Metadata recovery is performed by the end of the restore process, but no assumption should be made as to any specific timing or order within the restore process for a vApp.

- Always captured in backup.
- Normally recovered in restore to new. (Option available to decline all metadata restore.)
- Not automatically restored in a vApp "rollback" restore (restore to original)

Optional metadata examination procedure

A provider Admin can examine an XML representation of vApp and VM metadata using a REST operation. This facility is not functional for Org admins or vApp owners because metadata can contain security sensitive information. By design, the backup API will not expose this information, to a class of users that is restricted by the vCloud Director API.

1. Using a provider Admin account, retrieve original from backup repository with: **GET /api/admin/extension/EmcBackupService/backupRepository/22/backups?vcloudguid=3f79780c-6b0&orgguid=5f69730d-640&vappguid=1e797301-78a&seqnum=29&content=backupmetadatacollection**

Returns content including MetaDataEntry element like this example, similar to this example:

```
<MetadataEntry type="application/vnd.vmware.vcloud.metadata.value
+xml" href="https://10.25.85.50/api/vApp/vapp-3a79c320-ec75-4894-
a64c-647aa06e1b69/metadata/foo">
<Key>foo</Key>
<TypedValue xsi:type="MetadataStringValue">
<Value>bar</Value>
</TypedValue>
</MetadataEntry>
```

2. Validate and manipulate as required.

ControlAccess

On creation, vApps grant full access to their owners and no access to other users. The vCloud API access control mechanism enables vApp owners to expand or update these access controls if needed. The vApp backup process records the access setting to allow recovery of the original access configuration. This recovery is not performed automatically because it is possible that a historical access list could refer to user or group accounts that are no longer valid.

A rollback restore will not automatically restore the access control list to that recorded at the time of backup because if the access control list has changed, it is likely that the modification was performed for a reason that still pertains. It is also possible that the accounts in the list are no longer valid.

- Captured in backup. Available for recovery by a provider or Org Admin using the procedure described below, which includes using two additional REST API calls when an ControlAccess recovery is desired.
- Not automatically restored in rollback.
- Not automatically restored in restore to new. Instead, the vCloud Director default access rule is applied which results granting full access to the vApp owner and no access to others.

If access control recovery is desired, an optional two step procedure is provided to accomplish this.

Optional ControlAccess recovery procedure

A vCloud Director REST API call is provided to set access controls. It takes a ControlAccessParams element, as a parameter passed in the request body. The original ControlAccessParams element can be recovered from a backup using a GET operation.

1. Retrieve original from backup repository with:
   GET /api/admin/extension/EmcBackupService/backupRepository/22/backups?cloudguid=123&orgguid=456&vappguid=789&seqnum=29&content=vappconfig collection

   Returns content including a ControlAccessParams element, similar to this example:

```
<ControlAccessParams
xmlns="http://www.vmware.com/vcloud/v1.5">
<IsSharedToEveryone>true</IsSharedToEveryone>
<EveryoneAccessLevel>ReadOnly</EveryoneAccessLevel>
</ControlAccessParams>
```

2. Validate and manipulate as required.
3. Reapply with vCloud Director API like this example:

```
POST https://vcloud.example.com/api/vApp/vapp-7/action/
controlAccess
```

With ControlAccessParams XML in request body.

Note

This step uses a POST rather than a PUT operation, which is unusual when compared to other vApp configuration items

SnapshotSection

SnapshotSection is a read-only attribute of a vApp. It is recorded in a vApp backup but it is not restorable. It can be examined.

1. Retrieve original from backup repository with:
   GET /api/admin/extension/EmcBackupService/backupRepository/22/backups?vcloudguid=3f79780c-6b0&orgguid=5f69730d-640&vappguid=1e797301-78a&seqnum=29&content=backupconfigcollection

   Returns content including a SnapshotSection element like this example, similar to this example:

```
<SnapshotSection
    type="application/vnd.vmware.vcloud.snapshotSection+xml"
    href="https://vcloud.example.com/api/vApp/vapp-4/
snapshotSection"
    ovf:required="false">
    <ovf:Info>Snapshot information section</ovf:Info>
</SnapshotSection>
```

2. Validate as required.

Date Created

DateCreated is a read-only attribute of a vApp. It is recorded in a vApp backup but it is not restorable. It can be examined.

A rollback restore leaves the DateCreated set to its current value. A restore to new, sets the DateCreated to the time that the restore process creates the vApp.

1. Retrieve original from backup repository with:
   GET /api/admin/extension/EmcBackupService/backupRepository/22/backups?vcloudguid=3f79780c-6b0&orgguid=5f69730d-640&vappguid=1e797301-78a&seqnum=29&content=vappconfigcollection

   Returns content including a DateCreated element, similar to this example:

```
<DateCreated>2012-10-29T10:32:57.976-04:00</DateCreated>
```

2. Validate as required.

vApp name

The vApp name is not altered during a rollback restore. The current name is recorded in a vApp backup and can be examined.

During a restore to new, a mandatory vApp name must be provided. If the original vApp name is no longer in use, the name that is provided can be the original name.

Retrieve original from backup repository with:

GET /api/admin/extension/EmcBackupService/backupRepository/22/backups?vcloudguid=3f79780c-6b0&orgguid=5f69730d-640&vappguid=1e797301-78a&seqnum=29&content=vappconfigcollection

Returns content including a name attribute, similar to this example:

```
name="vAppSample"
```

vApp Description

The vApp description is not altered during a rollback restore. The current description is recorded in a vApp backup and can be examined. During a restore to new, a mandatory vApp description must be provided

GET /api/admin/extension/EmcBackupService/backupRepository/22/backups?=3f79780c-6b0&orgguid=5f69730d-640&vappguid=1e797301-78a&seqnum=29&content=vappconfigcollection

Returns content including a Description element, similar to this example:

```
<Description>Example FTP Server vApp</Description>
```

ProductSection (vApp)

ProductSection elements allow you to pass runtime information to vApps. The key=value pairs in this section are made available in the OVF Environment of a powered-on virtual machine. ProductSection is not present in all vApps.

Note

All ProductSection elements in a vApp are returned as members of a ProductSectionList. You cannot retrieve or update an individual ProductSection. Retrieve the ProductSectionList and update the list of individual ProductSection elements as a whole list.

The vCloud Director REST API provides a mechanism to change a vApp's ProductSectionList.

In the event that vApp ProductSection recovery is desired, an optional two step procedure is provided to accomplish this.

Optional vApp ProductSection recovery procedure

A vCloud Director REST API call is provided to update the ProductSectionList of a vApp. It takes a ProductSectionList element, as a parameter passed in the request body. The original ProductSectionList element can be recovered from a backup using a GET operation.

1. Retrieve original ProductSectionList from the backup with:

GET /api/admin/extension/EmcBackupService/backupRepository/22/backups?vcloudguid=3f79780c-6b0&orgguid=5f69730d-640&vappguid=1e797301-78a&seqnum=29&content=vappconfigcollection

Returns content including a ProductSectionList, similar to this example:

```
<ProductSectionList
...
<ovf:ProductSection required="true">
  <ovf:Info>Information about the installed software</ovf:Info>
  <ovf:Property ovf:type="string" ovf:key="CRM_Database_Host"
ovf:value="CRM.example.com">
    <ovf:Label>CRM Database Host</ovf:Label>
  </ovf:Property>
  <ovf:Property ovf:type="string" ovf:key="CRM_Database_Username"
ovf:value="dbuser">
    <ovf:Label>CRM Database Usernname</ovf:Label>
  </ovf:Property>
  <ovf:Property ovf:type="string" ovf:key="CRM_Password"
ovf:value="Pa55w0rd">
    <ovf:Label>CRM Database User Password</ovf:Label>
  </ovf:Property>
</ovf:ProductSection>
</ProductSectionList>
```

2. Validate and manipulate as required.
3. Reapply with vCloud Director API like this example:

```
POST https://vcloud.example.com/api/vApp/vapp-7/action/
controlAccess
```

With ControlAccessParams XML in request body.

Note

This step uses a POST rather than a PUT operation, which is unusual when compared to other vApp configuration items

VM characteristics captured in a backup

A deployed vApps has various characteristics and configurable settings that are captured during a backup.

Table 30 VM characteristics captured in a backup

Item	Recorded in backup	Recoverable	Automatically restored
NetworkConnectionSection	Yes	Yes	No
GuestCustomization	Yes	Yes	No
RuntimeInfoSection	Yes	No	No
Snapshot Section	Yes	No	No
DateCreated	Yes	No	No
StorageProfile	Yes	Yes	No

Table 30 VM characteristics captured in a backup (continued)

Item	Recorded in backup	Recoverable	Automatically restored
ProductSection	Yes[a]	Yes	No
VM Name	Yes	Yes	Yes
VM Description	Yes	Yes	No
Metadata	Yes	Yes	Yes / No[b]

a. ProductSection is not present in all VMs. If it is present it will be captured in the VM backup.
b. Yes on restore to new. No on restore to original (rollback).

NetworkConnectionSection (VM)

A VM vNIC can be connected to:

- An Organization Network
- A vApp network
- Nothing (not connected)

If the vNIC is connected to a network, there are three possible configuration choices on how to get an IP:

- Automatic assignment of an IP from a Static IP pool
- DHCP
- Static manual assignment

The NetworkConnectionSection specifies how the virtual NIC devices on a virtual machine are connected to the vApp networks.

If the VM is running a supported OS, with VMware Tools installed, vCloud Director attempts to configure network settings in the guest OS to match the vCloud configuration definition. For all vNICs, vCloud Director attempts to push subnet mask and IP settings to the guest OS. For the single vNIC designated as primary the primary vNIC, vCloud Director also attempt to push DNS and gateway settings, if these are defined.

Various issues can arise when restoring a vApp and/or vCloud VM from a backup:

- A previously connected External network may be gone.
- A previously connected Organization Network may be gone.
- A Static IP pool may no longer exist, or may be out of capacity.
- A previously deployed DHCP server may no longer be deployed.
- A formerly used static IP address may have been re-issued for another use.
- DNS servers may have been retired.
- Hostname entries in DNS may have been retired.
- Gateway addresses and subnet mask definitions may have changed.

Because of the issues that can occur when restoring a vApp and /or a vCloud VM, the NetworkConnectionSection associated with a VM is not automatically restored. This allows the option of retaining current network settings, restoring old network settings, or defining completely new network settings.

In a restore to new vApp, or in a vApp rollback restore that results in VM recreation:

- The resulting VM has the identical number and type of vNICs that existed at the time of backup
- If vNICs are disconnected at the vSphere level.
- No NetworkConnectionSection is defined for the VM.

In a vApp rollback restore, or a single VM rollback restore, where the VM disk configuration is unchanged:

- The vNIC connection state remains unchanged at the vSphere level.
- The NetworkConnectionSection remains unchanged at the vCloud Director level.

If VM network connection recovery is desired, an optional two step procedure is provided to accomplish this.

Optional VM network connection recovery procedure

A vCloud Director REST API call is provided to update the NetworkConnectionSection of a virtual machine. It takes a NetworkConnectionSection element, as a parameter passed in the request body. The original StartupSection element can be recovered from a backup using a GET operation.

1. Retrieve original ProductSectionList from the backup with:
   GET /api/admin/extension/EmcBackupService/backupRepository/22/backups?vcloudguid=3f79780c-6b0&orgguid=5f69730d-640&vappguid=1e797301-78a&seqnum=29&content=vappconfigcollection

   Returns content including a NetworkConnectionSection, similar to this example:

   ```
   <Children>
   <Vm needsCustomization="true" deployed="false" status="8"
   name="DEV Win2008 R2 SP2-SQLSERV" id="urn:vcloud:vm:
   4caef976-2f52-48aa-bf65-9bfb51211ede" type="application/
   vnd.vmware.vcloud.vm+xml" href="https://10.25.85.50/api/vApp/
   vm-4caef976-2f52-48aa-bf65-9bfb51211ede">
   ...
   <NetworkConnectionSection
   ...
   <PrimaryNetworkConnectionIndex>0</PrimaryNetworkConnectionIndex>
   <NetworkConnection
   network="vAppNetwork">
   <NetworkConnectionIndex>0</NetworkConnectionIndex>
   <IpAddress>10.147.115.1</IpAddress>
   <IsConnected>true</IsConnected>
   <MACAddress>00:50:56:01:01:49</MACAddress>
   <IpAddressAllocationMode>STATIC</IpAddressAllocationMode>
   </NetworkConnection>
   </NetworkConnectionSection>
   </Vm>
   </Children>
   ```

2. Validate and manipulate as required.
   Modified sections must contain all required elements, even if you are not changing their values. Because optional elements revert to default values if they are omitted or empty, it is a best practice to retain optional elements in updates. Link elements and href attributes from responses do not need to be included in modified sections, but is ignored if included. Some elements and attributes might be read-only, and ignored for purposes of update. See the VMware vCloud Director schema reference for details.
3. Reapply with vCloud Director API like this example:

   ```
   PUT /api/vApp/vapp/{vmid}/networkConnectionSection/
   ```

With NetworkConnectionSection XML in request body, returns a task.

GuestCustomizationSection (VM)

The GuestCustomizationSection includes predefined property names that VMware guest customization tools recognize. Certain values in this element, if omitted or left empty, are inherited from the OrgGuestPersonalizationSettings of the organization that owns the virtual machine.

Various issues can arise when restoring a vApp or vCloud VM from a backup:

- A Domain that is associated with a Windows VM may be gone.
- An LDAP or Active Directory Admin account defined in Guest Customization may no longer exist.
- A user may no longer remember the password that is associated with an old guest customization.

Because of the issues that can occur when restoring a vApp and /or a vCloud VM, the GuestCustomizationSection associated with a VM is not automatically restored. This allows the option of retaining current settings, restoring old settings, or defining completely new guest customization settings.

In the event that VM guest customization recovery is desired, an optional two step procedure is provided to accomplish this.

Optional VM guest customization recovery procedure

A vCloud Director REST API call is provided to update the GuestCustomizationSection of a virtual machine. It takes a GuestCustomizationSection element, as a parameter passed in the request body. The original GuestCustomizationSection element can be recovered from a backup using a GET operation.

1. Retrieve original from backup repository with:
   GET /api/admin/extension/EmcBackupService/backupRepository/22/backups?vcloudguid=3f79780c-6b0&orgguid=5f69730d-640&vappguid=1e797301-78a&seqnum=29&content=vappconfigcollection

   Returns content including a GuestCustomizationSection, similar to this example:

```
<Children>
<Vm needsCustomization="true" deployed="false" status="8"
name="DEV Win2008 R2 SP2-SQLSERV" id="urn:vcloud:vm:
4caef976-2f52-48aa-bf65-9bfb51211ede" type="application/
vnd.vmware.vcloud.vm+xml" href="https://10.25.85.50/api/vApp/
vm-4caef976-2f52-48aa-bf65-9bfb51211ede">
...
<GuestCustomizationSection
...
<Enabled>true</Enabled>
<ChangeSid>true</ChangeSid>
<VirtualMachineId>12</VirtualMachineId>
<JoinDomainEnabled>false</JoinDomainEnabled>
<UseOrgSettings>false</UseOrgSettings>
<DomainName>example</DomainName>
<DomainUserName>Admin</DomainUserName>
<DomainUserPassword>Pa55w0rd</DomainUserPassword>
<AdminPasswordEnabled>true</AdminPasswordEnabled>
<AdminPasswordAuto>true</AdminPasswordAuto>
<AdminPassword />
<ResetPasswordRequired>false</ResetPasswordRequired>
```

```
<CustomizationScript />
<ComputerName>Win2K3</ComputerName>
</GuestCustomizationSection>
</Vm>
</Children>
```

2. Validate and manipulate as required.
3. Reapply with vCloud Director API like this example:

```
PUT /api/vApp/{vmid}/guestCustomizationSection/
```

With GuestCustomizationSection XML in request body, returns a task.

RuntimeInfoSection (VM)

The RuntimeInfoSection indicates the version of VMware Tools that are installed in a VM. It is a read-only item. The VMware vCloud Director API does not allow updating this item - and it should only change if the version of VMware Tools changes inside the guest OS.

A full restoration of a VM results in recovery of the same version of VMware Tools that was in place at the time of backup.

It is possible to retrieve the historical value of this item from a backup, though doing so is probably of limited value.

The following REST call can be used to accomplish this:

GET /api/admin/extension/EmcBackupService/backupRepository/22/backups?vcloudguid=3f79780c-6b0&orgguid=5f69730d-640&vappguid=1e797301-78a&seqnum=29&content=vappconfigcollection

Returns content including a RuntimeInfoSection, similar to this example:

```
<Vm name="DEV Win2008 R2 SP2-SQLSERV" id="urn:vcloud:vm:
4caef976-2f52-48aa-bf65-9bfb51211ede" type="application/
vnd.vmware.vcloud.vm+xml" href="https://10.25.85.50/api/vApp/
vm-4caef976-2f52-48aa-bf65-9bfb51211ede">
...
<RuntimeInfoSection xmlns:ns12="http://www.vmware.com/vcloud/v1.5"
ns12:href="https://10.6.246.107/api/vApp/vm-82973b72-2685-4c0a-884a-
d17d1c0ffebe/runtimeInfoSection" ns12:type="application/
vnd.vmware.vcloud.virtualHardwareSection+xml">
 <ovf:Info>Specifies Runtime info</ovf:Info>
 <VMWareTools version="8389"/>
</RuntimeInfoSection>
</Vm>
</Children>
```

RuntimeInfoSection (VM)

The SnapshotSection indicates information about any vApp snapshot that was in place at the time of the backup of a VM. It is a read-only item. The VMware vCloud Director API does not allow updating this item.

The VMware vCloud Director API does not allow updating this item. The VM backup records only the current state of the VM at the time of the backup. If any snapshots of the VM are in place at the time of the backup, these snapshots are not captured in the backup process, and are thus not recoverable. Although such snapshots are not recoverable, this item can be used as an indicator that a vCloud Director vApp snapshot existed at the time of VM backup.

It is possible to retrieve the historical value of this item from a backup, though doing so is probably of limited value.

The following REST call can be used to accomplish this:

GET /api/admin/extension/EmcBackupService/backupRepository/22/backups?vcloudguid=3f79780c-6b0&orgguid=5f69730d-640&vappguid=1e797301-78a&seqnum=29&content=vappconfigcollection

Returns content including a SnapshotSection, similar to this example:

```
<Children>
<Vm name="DEV Win2008 R2 SP2-SQLSERV" id="urn:vcloud:vm:
4caef976-2f52-48aa-bf65-9bfb51211ede" type="application/
vnd.vmware.vcloud.vm+xml" href="https://10.25.85.50/api/vApp/
vm-4caef976-2f52-48aa-bf65-9bfb51211ede">
...
<SnapshotSection type="application/vnd.vmware.vcloud.snapshotSection
+xml" href="https://10.6.246.107/api/vApp/vm-82973b72-2685-4c0a-884a-
d17d1c0ffebe/snapshotSection" ovf:required="false">
  <ovf:Info>Snapshot information section</ovf:Info>
</SnapshotSection>
</Vm>
</Children>
```

DateCreated (VM)

The DateCreated indicates the date a VM was created. It is a read-only item. The VMware vCloud Director API does not allow updating this item. If a restore can recover a VM without (re)creating a VM, this value will not be modified. If a restore creates a new VM, generally a scenario where the VM's disk configuration has changed, a restore of a deleted VM, or a restore to new, this item is set to the time of the restore.

It is possible to retrieve the historical value of this item from a backup, though doing so is probably of limited value.

The following REST call can be used to accomplish this:

GET /api/admin/extension/EmcBackupService/backupRepository/22/backups?vcloudguid=3f79780c-6b0&orgguid=5f69730d-640&vappguid=1e797301-78a&seqnum=29&content=vappconfigcollection

Returns content including a DateChanged, similar to this example:

```
<Children>
<Vm name="DEV Win2008 R2 SP2-SQLSERV" id="urn:vcloud:vm:
4caef976-2f52-48aa-bf65-9bfb51211ede" type="application/
vnd.vmware.vcloud.vm+xml" href="https://10.25.85.50/api/vApp/
vm-4caef976-2f52-48aa-bf65-9bfb51211ede">
...
<DateCreated>2013-04-04T11:28:04.423-07:00</DateCreated>
</Vm>
</Children>
```

VAppScopedLocalId (VM)

The VAppScopedLocalId provides a unique identifier for the virtual machine in the scope of the composed vApp. It is a read-only item.

The VMware vCloud Director API does not allow updating this item. If a restore can recover a VM without (re)creating a VM, this value will not be modified. If a restore creates a VM, generally a scenario where the VM's disk configuration has changed, a restore of a deleted VM, or a restore to new, vCloud Director sets this to a new unique identifier, which is unlikely to match the original identifier.

It is possible to retrieve the historical value of this item from a backup, though doing so is probably of limited value.

The following REST call can be used to accomplish this:

GET /api/admin/extension/EmcBackupService/backupRepository/22/backups?vcloudguid=3f79780c-6b0&orgguid=5f69730d-640&vappguid=1e797301-78a&seqnum=29&content=vappconfigcollection

Returns content including a VAppScopedLocalId, similar to this example:

```
<Children>
<Vm name="DEV Win2008 R2 SP2-SQLSERV" id="urn:vcloud:vm:
4caef976-2f52-48aa-bf65-9bfb51211ede" type="application/
vnd.vmware.vcloud.vm+xml" href="https://10.25.85.50/api/vApp/
vm-4caef976-2f52-48aa-bf65-9bfb51211ede">
...
<VAppScopedLocalId>1733801c-98e4-4d69-97c0-c7e9bb024b49</
VAppScopedLocalId>
</Vm>
</Children>
```

StorageProfile (VM)

Every VM element includes a StorageProfile element. The value of the href attribute of that element is a reference to a storage profile associated with the vDC hosting the parent vApp. The initial value of this attribute is inherited from the VDC that contains the vApp unless a different value is specified when the virtual machine is created. The vCloud Director REST API provides a mechanism to change a VM's storage profile.

When restoring a vCloud VM from a backup, it is possible that the storage profile that is recorded in the backup no longer exists in the vDC. Because of this issue, the storage profile that is associated with a VM is not automatically restored. This allows the option of retaining current settings, restoring old settings, or utilizing a completely new storage profile.

In the event that VM storage profile recovery is desired, an optional three step procedure is provided to accomplish this.

Optional VM storage profile recovery procedure

A vCloud Director REST API call is provided to update the storage profile of a virtual machine. It takes a StorageProfile element, as a parameter passed in the request body. The original StorageProfile element can be recovered from a backup using a GET operation.

1. Retrieve original StorageProfile from the backup with:
   GET /api/admin/extension/EmcBackupService/backupRepository/22/backups?vcloudguid=3f79780c-6b0&orgguid=5f69730d-640&vappguid=1e797301-78a&seqnum=29&content=vappconfigcollection

   Returns content including a StorageProfile, similar to this example:

   ```
   <Children>
   <Vm needsCustomization="true" deployed="false" status="8"
   name="DEV Win2008 R2 SP2-SQLSERV" id="urn:vcloud:vm:
   4caef976-2f52-48aa-bf65-9bfb51211ede" type="application/
   vnd.vmware.vcloud.vm+xml" href="https://10.25.85.50/api/vApp/
   vm-4caef976-2f52-48aa-bf65-9bfb51211ede">
   ...
   <StorageProfile type="application/
   vnd.vmware.vcloud.vdcStorageProfile+xml" name="*" href="https://
   10.6.246.107/api/vdcStorageProfile/14315350-27ac-4622-977d-
   ```

```
ab5449795894"/>
</Vm>
</Children>
```

2. Validate that the original storage profile is still valid.
3. Retrieve the VM element from the vApp:
   GET https://vcloud.example.com/api/vApp/{vmid}
4. Modify the VM element by replacing the StorageProfile.
   Modified sections must contain all required elements, even if you are not changing their values. Because optional elements revert to default values if they are omitted or empty, it is a best practice to include optional elements in updates.
5. Reapply with vCloud Director API like this example:

```
PUT /api/vApp/vapp/{vmid}
```

ProductSection (VM)

ProductSection elements allow you to pass runtime information to virtual machines. The key=value pairs in this section are made available in the OVF Environment of a powered on virtual machine.

Note

All ProductSection elements in a virtual machine are returned as members of a ProductSectionList. You cannot retrieve or update an individual ProductSection. You must retrieve the ProductSectionList and update whole list of individual ProductSection elements.

The vCloud Director REST API provides a mechanism to change a VM's ProductSectionList.

In the event that VM ProductSection recovery is desired, an optional two step procedure is provided to accomplish this.

Optional VM ProductSection recovery procedure

A vCloud Director REST API call is provided to update the ProductSectionList of a virtual machine. It takes a ProductSectionList element, as a parameter passed in the request body. The original ProductSectionList element can be recovered from a backup using a GET operation.

1. Retrieve the original ProductSectionList from the backup with:
   GET /api/admin/extension/EmcBackupService/backupRepository/22/backups?vcloudguid=3f79780c-6b0&orgguid=5f69730d-640&vappguid=1e797301-78a&seqnum=29&content=vappconfigcollection

   Returns content including a ProductSectionList, similar to this example:

```
<Children>
<Vm needsCustomization="true" deployed="false" status="8"
name="DEV Win2008 R2 SP2-SQLSERV" id="urn:vcloud:vm:
4caef976-2f52-48aa-bf65-9bfb51211ede" type="application/
vnd.vmware.vcloud.vm+xml" href="https://10.25.85.50/api/vApp/
vm-4caef976-2f52-48aa-bf65-9bfb51211ede">
...
  <ProductSectionList
  ...
```

```
  <ovf:ProductSection required="true">
    <ovf:Info>Information about the installed software</ovf:Info>
    <ovf:Property ovf:type="string" ovf:key="CRM_Database_Host"
ovf:value="CRM.example.com">
      <ovf:Label>CRM Database Host</ovf:Label>
    </ovf:Property>
    <ovf:Property ovf:type="string"
ovf:key="CRM_Database_Username" ovf:value="dbuser">
      <ovf:Label>CRM Database Usernname</ovf:Label>
    </ovf:Property>
    <ovf:Property ovf:type="string" ovf:key="CRM_Password"
ovf:value="Pa55w0rd">
      <ovf:Label>CRM Database User Password</ovf:Label>
    </ovf:Property>
  </ovf:ProductSection>
  </ProductSectionList>
</Vm>
</Children>
```

2. Reapply with vCloud Director API like this example:

```
PUT /api/vApp/vapp/{vmid}/ProductSections
```

With ProductSectionList XML in request body, returns a task.

Metadata (VM)

The vCloud API provides a general-purpose facility for associating user-defined metadata with individual VMs contained within a vApp.

vCloud Director maintains two classes of metadata: GENERAL and SYSTEM. A vApp owner can access GENERAL metadata. Only a provider Admin can access SYSTEM metadata. Both classes of metadata are recorded in a vApp backup.

The REST API operations that initiate a restore to new vApp allow opting out of metadata restore, but it is expected that in almost all restore to new vApp scenarios, a caller would opt to restore metadata. The metadata restore election applies to all metadata, SYSTEM and GENERAL, as well as both vApp and VM metadata.

Metadata recovery will be performed by the end of the restore process, but no assumption should be made as to any specific timing or order within the restore process for a vApp.

- Always captured in backup.
- Normally recovered in restore to new. (Option available to decline all metadata restore.)
- Not automatically recovered in a vApp "rollback" restore (restore to original)

Optional metadata examination procedure

A provider Admin can examine an XML representation of VM metadata using a REST operation. This facility is not functional for Org admins or vApp owners because metadata can contain security sensitive information. By design, the backup API will not expose this information, to a class of users that is restricted by the vCloud Director API.

Using a provider Admin account, retrieve original from backup repository with:

GET /api/admin/extension/EmcBackupService/backupRepository/22/backups?vcloudguid=3f79780c-6b0&orgguid=5f69730d-640&vappguid=1e797301-78a&seqnum=29&content=backupmetadatacollection

Returns content including MetaDataEntry elements, similar to this example:

```
<BackupMetadataItem
  source="vApp/vm-208dead4-69af-44b8-8bd4-6123b61af127"
  type="vmmetadata">
  <Metadata
    <MetadataEntry
      ...
      <Key>foo</Key>
      <TypedValue xsi:type="MetadataStringValue">
        <Value>bar</Value>
      </TypedValue>
    </MetadataEntry>
  </Metadata>
</BackupMetadataItem>
```

CHAPTER 14

Summary of Resources, Methods, and Users

This section lists the resources, methods and users.

Resource, Users, and Methods

Table 31 Resources, Methods, and User

Role			Method	URL
System Admin	Org Admin	vApp Owner		
x			**GET**	/api/admin/extension/EmcBackupService
x			**PUT**	/api/admin/extension/EmcBackupService/backupAppliance/{id}
x			**GET**	/api/admin/extension/EmcBackupService/backupAppliance/{id}
x			**DELETE**	/api/admin/extension/EmcBackupService/backupAppliance/{id}
x			**GET**	/api/admin/extension/EmcBackupService/backupAppliance/{id}/backups?vcloudguid={id}&orgguid={id}&vdcguid={id}&vappguid={id}&seqnum={id}
x			**PUT**	/api/admin/extension/EmcBackupService/backupAppliance/{id}/backups?vcloudguid={id}&orgguid={id}&vdcguid={id}&vappguid={id}&seqnum={id}
x			**DELETE**	/api/admin/extension/EmcBackupService/backupAppliance/{id}/backups?vcloudguid={id}&orgguid={id}&vdcguid={id}&vappguid={id}&seqnum={id}
x			**GET**	/api/admin/extension/EmcBackupService/backupAppliance/{id}/query
x			**POST**	/api/admin/extension/EmcBackupService/backupAppliance/{id}/vCenterRegistrations
x			**GET**	/api/admin/extension/EmcBackupService/backupAppliance/{id}/vCenterRegistrations

Table 31 Resources, Methods, and User (continued)

Role			Method	URL
System Admin	Org Admin	vApp Owner		
x			**POST**	/api/admin/extension/EmcBackupService/backupAppliances
x			**GET**	/api/admin/extension/EmcBackupService/backupAppliances
x			**PUT**	/api/admin/extension/EmcBackupService/backupOptionSet/{id}
x			**GET**	/api/admin/extension/EmcBackupService/backupOptionSet/{id}
x			**DELETE**	/api/admin/extension/EmcBackupService/backupOptionSet/{id}
x			**POST**	/api/admin/extension/EmcBackupService/backupOptionSets
x			**GET**	/api/admin/extension/EmcBackupService/backupOptionSets
x			**PUT**	/api/admin/extension/EmcBackupService/backupPolicyTemplate/{id}
x			**GET**	/api/admin/extension/EmcBackupService/backupPolicyTemplate/{id}
x			**DELETE**	/api/admin/extension/EmcBackupService/backupPolicyTemplate/{id}
x			**PUT**	/api/admin/extension/EmcBackupService/backupPolicyTemplateCatalog/{id}
x			**GET**	/api/admin/extension/EmcBackupService/backupPolicyTemplateCatalog/{id}
x			**DELETE**	/api/admin/extension/EmcBackupService/backupPolicyTemplateCatalog/{id}

Table 31 Resources, Methods, and User (continued)

Role			Method	URL
System Admin	Org Admin	vApp Owner		
x			**POST**	/api/admin/extension/EmcBackupService/backupPolicyTemplateCatalog/{id}/backupPolicyTemplates
x			**GET**	/api/admin/extension/EmcBackupService/backupPolicyTemplateCatalog/{id}/backupPolicyTemplates
x			**GET**	/api/admin/extension/EmcBackupService/backupPolicyTemplateCatalog/{id}/backupPolicyTemplates/query
x			**POST**	/api/admin/extension/EmcBackupService/backupPolicyTemplateCatalogs
x			**GET**	/api/admin/extension/EmcBackupService/backupPolicyTemplateCatalogs
x	x		**POST**	/api/admin/extension/EmcBackupService/backupRepository/{id}
x			**PUT**	/api/admin/extension/EmcBackupService/backupRepository/{id}
x			**GET**	/api/admin/extension/EmcBackupService/backupRepository/{id}
x			**DELETE**	/api/admin/extension/EmcBackupService/backupRepository/{id}
x	x		**GET**	/api/admin/extension/EmcBackupService/backupRepository/{id}/backups?vcloudguid={id}&orgguid={id}&vappguid={id}&seqnum={id}
x			**PUT**	/api/admin/extension/EmcBackupService/backupRepository/{id}/backups?vcloudguid={id}&orgguid={id}&vappguid={id}&seqnum={id}

Table 31 Resources, Methods, and User (continued)

Role			Method	URL
System Admin	Org Admin	vApp Owner		
x			**DELETE**	/api/admin/extension/EmcBackupService/backupRepository/{id}/backups?vcloudguid={id}&orgguid={id}&vappguid={id}&seqnum={id}
x			**GET**	/api/admin/extension/EmcBackupService/backupRepository/{id}/DefaultReplicationPolicy
x			**PUT**	/api/admin/extension/EmcBackupService/backupRepository/{id}/DefaultReplicationPolicy
x	x		**GET**	/api/admin/extension/EmcBackupService/backupRepository/{id}/DefaultReplicationPolicy/attachedVapps
x	x		**PUT**	/api/admin/extension/EmcBackupService/backupRepository/{id}/DefaultReplicationPolicy/attachedVapps
x	x		**GET**	/api/admin/extension/EmcBackupService/backupRepository/{id}/query
x			**GET**	/api/admin/extension/EmcBackupService/backupRepository/{id}/ReplicationPolicies
x			**POST**	/api/admin/extension/EmcBackupService/backupRepository/{id}/ReplicationPolicies
x			**PUT**	/api/admin/extension/EmcBackupService/backupRetention/{id}
x			**GET**	/api/admin/extension/EmcBackupService/backupRetention/{id}

Table 31 Resources, Methods, and User (continued)

Role			Method	URL
System Admin	Org Admin	vApp Owner		
x			**DELETE**	/api/admin/extension/EmcBackupService/backupRetention/{id}
x			**POST**	/api/admin/extension/EmcBackupService/backupRetentions
x			**GET**	/api/admin/extension/EmcBackupService/backupRetentions
x			**PUT**	/api/admin/extension/EmcBackupService/backupSchedule/{id}
x			**GET**	/api/admin/extension/EmcBackupService/backupSchedule/{id}
x			**DELETE**	/api/admin/extension/EmcBackupService/backupSchedule/{id}
x			**POST**	/api/admin/extension/EmcBackupService/backupSchedules
x			**GET**	/api/admin/extension/EmcBackupService/backupSchedules
x			**POST**	/api/admin/extension/EmcBackupService/orgRegistrations
x			**GET**	/api/admin/extension/EmcBackupService/orgRegistrations
x	x		**PUT**	/api/admin/extension/EmcBackupService/replicationPolicy/{id}
x	x		**GET**	/api/admin/extension/EmcBackupService/replicationPolicy/{id}
x			**DELETE**	/api/admin/extension/EmcBackupService/replicationPolicy/{id}

Table 31 Resources, Methods, and User (continued)

Role			Method	URL
System Admin	Org Admin	vApp Owner		
x			**POST**	/api/admin/extension/EmcBackupService/replicationPolicy/{id}
x	x		**GET**	/api/admin/extension/EmcBackupService/replicationPolicy/{id}/attachedVapps
x	x		**PUT**	/api/admin/extension/EmcBackupService/replicationPolicy/{id}/attachedVapps
x			**PUT**	/api/admin/extension/EmcBackupService/vCenterRegistration/{id}
x			**GET**	/api/admin/extension/EmcBackupService/vCenterRegistration/{id}
x			**DELETE**	/api/admin/extension/EmcBackupService/vCenterRegistration/{id}
x			**GET**	/api/admin/extension/EmcBackupService/vCenterRegistration/{id}/backupProxyRegistrations
x			**PUT**	/api/admin/extension/vdc/{id}/ActiveBackupRepository
x	x		**GET**	/api/admin/extension/vdc/{id}/ActiveBackupRepository
x			**GET**	/api/admin/extension/vdc/{id}/BackupConfiguration
x			**PUT**	/api/admin/extension/vdc/{id}/BackupConfiguration
x	x		**GET**	/api/admin/extension/vdc/{id}/BackupPolicies
x			**POST**	/api/admin/extension/vdc/{id}/BackupPolicies
x			**DELETE**	/api/admin/extension/vdc/{id}/BackupPolicy/{id}
x	x		**GET**	/api/admin/extension/vdc/{id}/BackupPolicy/{id}

Table 31 Resources, Methods, and User (continued)

Role			Method	URL
System Admin	Org Admin	vApp Owner		
x	x[a]		**PUT**	/api/admin/extension/vdc/{id}/BackupPolicy/{id}
x	x		**GET**	/api/admin/extension/vdc/{id}/BackupPolicy/{id}/attachedVapps
x	x		**PUT**	/api/admin/extension/vdc/{id}/BackupPolicy/{id}/attachedVapps
x			**POST**	/api/admin/extension/vdc/{id}/BackupRepositories
x	x		**GET**	/api/admin/extension/vdc/{id}/BackupRepositories
x	x		**GET**	/api/admin/extension/vdc/{id}/DefaultBackupPolicy
x	x		**PUT**	/api/admin/extension/vdc/{id}/DefaultBackupPolicy
x	x		**GET**	/api/admin/extension/vdc/{id}/DefaultBackupPolicy/attachedVapps
x	x		**PUT**	/api/admin/extension/vdc/{id}/DefaultBackupPolicy/attachedVapps
x	x		**GET**	/api/admin/vApp/vapp-{id}/backupPolicies
x	x		**PUT**	/api/admin/vApp/vapp-{id}/backupPolicies
x			**PUT**	/api/vApp/vapp-{id}/backup/{id}
x	x	x	**GET**	/api/vApp/vapp-{id}/backup/{id}
x			**DELETE**	/api/vApp/vapp-{id}/backup/{id}
x	x	x[a]	**POST**	/api/vApp/vapp-{id}/backup/{id}
x	x	x	**GET**	/api/vApp/vapp-{id}/backup/{id}/backupmetadatacollection
x	x	x	**GET**	/api/vApp/vapp-{id}/backup/{id}/queryDiskReconfigured

Table 31 Resources, Methods, and User (continued)

Role			Method	URL
System Admin	Org Admin	vApp Owner		
x	x	x	**GET**	/api/vApp/vapp-{id}/backup/{id}/vappconfigcollection
x	x	x	**POST**	/api/vApp/vapp-{id}/backup/{id}/vm/vm-{id}/connections
x	x	x	**DELETE**	/api/vApp/vapp-{id}/backup/{id}/vm/vm-{id}/connections/{id}
x	x	x	**GET**	/api/vApp/vapp-{id}/backup/{id}/vm/vm-{id}/files
x	x	x	**PUT**	/api/vApp/vapp-{id}/backupexcludelist
x	x	x	**GET**	/api/vApp/vapp-{id}/backupexcludelist
x	x	x	**DELETE**	/api/vApp/vapp-{id}/backupexcludelist
x	x[a]	x[a]	**POST**	/api/vApp/vapp-{id}/backups
x	x	x	**GET**	/api/vApp/vapp-{id}/backups
x	x	x	**GET**	/api/vApp/vapp-{id}/backups/query
x	x	x	**POST**	/api/vApp/vapp-{id}/vm/vm-{id}/connections
x	x	x	**DELETE**	/api/vApp/vapp-{id}/vm/vm-{id}/connections/{id}
x	x	x	**GET**	/api/vApp/vapp-{id}/vm/vm-{id}/files
x	x	x	**POST**	/api/vApp/vapp-{id}/vm/vm-{id}/files

a. If enabled by system admin in BackupConfiguration.