

Manage SAN vVol bindings

ONTAP 9.12.1 REST API reference

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Manage SAN vVol bindings

Protocols SAN vvol-bindings endpoint overview

Overview

A VMware virtual volume (vVol) binding is an association between a LUN of class protocol_endpoint and a LUN of class protocol_endpoint LUNs are mapped to igroups and granted access using the same configuration as class regular LUNs. When a class vvol LUN is bound to a mapped class protocol_endpoint LUN, VMware can access the class vvol LUN through the class protocol endpoint LUN mapping.

Class protocol_endpoint and vvol LUNs support many-to-many vVol bindings. A LUN of one class can be bound to zero or more LUNs of the opposite class.

The vVol binding between any two specific LUNs is reference counted. When a REST POST is executed for a vVol binding that already exists, the vVol binding reference count is incremented. When a REST DELETE is executed, the vVol binding reference count is decremented. Only when the vVol binding count reaches zero, or the query parameter delete all references is supplied, is the vVol binding destroyed.

The vVol binding REST API allows you to create, delete, and discover vVol bindings.

Examples

Creating a vVol binding

```
# The API:
POST /api/protocols/san/vvol-bindings

# The call:
curl -X POST 'https://<mgmt-ip>/api/protocols/san/vvol-bindings' -H
'Accept: application/hal+json' -d '{ "svm": { "name": "svm1" },
    "protocol_endpoint": { "name": "/vol/vol1/pe1" }, "vvol" : { "name": "/vol/vol1/vvol1" } }'
```

Retrieving all vVol bindings

```
# The API:
GET /api/protocols/san/vvol-bindings

# The call:
curl -X GET 'https://<mgmt-ip>/api/protocols/san/vvol-bindings' -H
'Accept: application/hal+json'

# The response:
```

```
"records": [
  {
    "protocol endpoint": {
      "uuid": "2aab57f3-dc5d-491e-80d2-15c7ed5dd5c4",
      "name": "/vol/vol1/pe1",
      " links": {
        "self": {
          "href": "/api/storage/luns/2aab57f3-dc5d-491e-80d2-15c7ed5dd5c4"
      }
    },
    "vvol": {
      "uuid": "28c02623-42fa-4f5f-a984-a02044bfc005",
      "name": "/vol/vol1/vvol1",
      " links": {
       "self": {
          "href": "/api/storage/luns/28c02623-42fa-4f5f-a984-a02044bfc005"
      }
    },
    " links": {
      "self": {
        "href": "/api/protocols/san/vvol-bindings/2aab57f3-dc5d-491e-80d2-
15c7ed5dd5c4/28c02623-42fa-4f5f-a984-a02044bfc005"
    }
  },
    "protocol endpoint": {
      "uuid": "2aab57f3-dc5d-491e-80d2-15c7ed5dd5c4",
      "name": "/vol/vol1/pe1",
      " links": {
        "self": {
          "href": "/api/storage/luns/2aab57f3-dc5d-491e-80d2-15c7ed5dd5c4"
      }
    },
    "vvol": {
      "uuid": "a8d4ba93-918f-40ad-a1e4-4d7b244bdcdf",
      "name": "/vol/vol1/vvol2",
      " links": {
       "self": {
          "href": "/api/storage/luns/a8d4ba93-918f-40ad-a1e4-4d7b244bdcdf"
        }
      }
```

Retrieving a specific vVol binding

```
# The API:
GET /api/protocols/san/vvol-bindings/{protocol endpoint.uuid}/{vvol.uuid}
# The call:
curl -X GET 'https://<mgmt-ip>/api/protocols/san/vvol-bindings/2aab57f3-
dc5d-491e-80d2-15c7ed5dd5c4/28c02623-42fa-4f5f-a984-a02044bfc005' -H
'Accept: application/hal+json'
# The response:
"protocol endpoint": {
 "uuid": "2aab57f3-dc5d-491e-80d2-15c7ed5dd5c4",
  "name": "/vol/vol1/pe1",
  " links": {
   "self": {
      "href": "/api/storage/luns/2aab57f3-dc5d-491e-80d2-15c7ed5dd5c4"
    }
},
"vvol": {
  "uuid": "28c02623-42fa-4f5f-a984-a02044bfc005",
  "name": "/vol/vol1/vvol1",
  " links": {
    "self": {
      "href": "/api/storage/luns/28c02623-42fa-4f5f-a984-a02044bfc005"
```

```
},
"svm": {
  "uuid": "bf295ccc-a6bb-11eb-93e8-005056bb470f",
  "name": "svm1",
  " links": {
    "self": {
      "href": "/api/svm/svms/bf295ccc-a6bb-11eb-93e8-005056bb470f"
  }
},
"id": 2411392,
"is optimal": true,
"count": 1,
" links": {
 "self": {
    "href": "/api/protocols/san/vvol-bindings/2aab57f3-dc5d-491e-80d2-
15c7ed5dd5c4/28c02623-42fa-4f5f-a984-a02044bfc005"
}
}
```

Deleting a vVol binding

```
# The API:
DELETE /api/protocols/san/vvol-
bindings/{protocol_endpoint.uuid}/{vvol.uuid}

# The call:
curl -X DELETE 'https://<mgmt-ip>/api/protocols/san/vvol-
bindings/2aab57f3-dc5d-491e-80d2-15c7ed5dd5c4/28c02623-42fa-4f5f-a984-
a02044bfc005' -H 'Accept: application/hal+json'
```

Retrieve vVol bindings

GET /protocols/san/vvol-bindings

Introduced In: 9.10

Retrieves vVol bindings.

Related ONTAP commands

- lun bind show
- DOC /protocols/san/vvol-bindings

Parameters

Name	Туре	In	Required	Description
is_optimal	boolean	query	False	Filter by is_optimal
vvol.name	string	query	False	Filter by vvol.name
vvol.uuid	string	query	False	Filter by vvol.uuid
count	integer	query	False	Filter by count
svm.uuid	string	query	False	Filter by svm.uuid
svm.name	string	query	False	Filter by svm.name
protocol_endpoint.na me	string	query	False	Filter by protocol_endpoint.n ame
protocol_endpoint.uu id	string	query	False	Filter by protocol_endpoint.u uid
id	integer	query	False	Filter by id
fields	array[string]	query	False	Specify the fields to return.
max_records	integer	query	False	Limit the number of records returned.
return_records	boolean	query	False	The default is true for GET calls. When set to false, only the number of records is returned. • Default value: 1

Name	Туре	In	Required	Description
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When iterating over a collection, the default is 15 seconds. ONTAP returns earlier if either max records or the end of the collection is reached. • Default value: 1 • Max value: 120 • Min value: 0
order_by	array[string]	query	False	Order results by specified fields and optional [asc

Response

Status: 200, Ok

Name	Туре	Description
_links	_links	
num_records	integer	The number of records in the response.
records	array[vvol_binding]	

```
" links": {
  "next": {
   "href": "/api/resourcelink"
 },
 "self": {
   "href": "/api/resourcelink"
 }
},
"num records": 1,
"records": {
  " links": {
   "self": {
     "href": "/api/resourcelink"
  },
  "count": 1,
  "id": 1,
  "is optimal": 1,
  "protocol endpoint": {
    " links": {
     "self": {
        "href": "/api/resourcelink"
     }
    "name": "/vol/volume1/lun1",
   "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "svm": {
   " links": {
     "self": {
       "href": "/api/resourcelink"
     }
    },
    "name": "svm1",
   "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "vvol": {
    " links": {
     "self": {
       "href": "/api/resourcelink"
     }
    },
    "name": "/vol/volume1/lun1",
```

```
"uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
}
}
}
```

Error

```
Status: Default, Error
```

Name	Туре	Description
error	error	

Example error

```
"error": {
    "arguments": {
        "code": "string",
        "message": "string"
    },
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
    }
}
```

Definitions

See Definitions

href

Name	Туре	Description
href	string	

_links

Name	Туре	Description
next	href	
self	href	

_links

Name	Туре	Description
self	href	

protocol_endpoint

The class protocol_endpoint LUN in the vVol binding. Required in POST.

Name	Туре	Description
_links	_links	
name	string	The fully qualified path name of the LUN composed of the "/vol" prefix, the volume name, the (optional) qtree name, and base name of the LUN. Valid in POST and PATCH.
uuid	string	The unique identifier of the LUN.

svm

The SVM in which the vVol binding and its LUNs are located. Required in POST.

Name	Туре	Description
_links	_links	
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

vvol

The class vvol LUN in the vVol binding. Required in POST.

Name	Туре	Description
_links	_links	
name	string	The fully qualified path name of the LUN composed of the "/vol" prefix, the volume name, the (optional) qtree name, and base name of the LUN. Valid in POST and PATCH.
uuid	string	The unique identifier of the LUN.

vvol_binding

A VMware virtual volume (vVol) binding is an association between a LUN of class protocol_endpoint and a LUN of class protocol_endpoint LUNs are mapped to igroups and granted access using the same configuration as class regular LUNs. When a class vvol LUN is bound to a mapped class protocol_endpoint LUN, VMware can access the class vvol LUN through the class protocol_endpoint LUN mapping.

Class protocol_endpoint and vvol LUNs support many-to-many vVol bindings. A LUN of one class can be bound to zero or more LUNs of the opposite class.

The vVol binding between any two specific LUNs is reference counted. When a REST POST is executed for a vVol binding that already exists, the vVol binding reference count is incremented. When a REST DELETE is executed, the vVol binding reference count is decremented. Only when the vVol binding count reaches zero, or the query parameter delete_all_references is supplied, is the vVol binding destroyed.

Name	Туре	Description
_links	_links	
count	integer	The vVol binding between any two specific LUNs is reference counted. When a REST POST is executed for a vVol binding that already exists, the vVol binding reference count is incremented. When a REST DELETE is executed, the vVol binding reference count is decremented. Only when the vVol binding count reaches zero, or the query parameter delete_all_references is supplied, is the vVol binding destroyed.

Name	Туре	Description
id	integer	The identifier assigned to the vVol binding. The bind identifier is unique amongst all class vvol LUNs bound to the same class protocol_endpoint LUN.
is_optimal	boolean	Indicates if the class procotol_endpoint LUN and the class vvol LUN are on the same cluster node.
protocol_endpoint	protocol_endpoint	The class protocol_endpoint LUN in the vVol binding. Required in POST.
svm	svm	The SVM in which the vVol binding and its LUNs are located. Required in POST.
vvol	vvol	The class vvol LUN in the vVol binding. Required in POST.

error_arguments

Name	Туре	Description
code	string	Argument code
message	string	Message argument

error

Name	Туре	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Create a vVol binding

POST /protocols/san/vvol-bindings

Introduced In: 9.10

Creates a vVol binding. The binding between any two specific LUNs is reference counted. When a binding is created that already exists, the binding count is incremented.

Required properties

- svm.uuid or svm.name Existing SVM in which to create the vVol binding.
- protocol_endpoint.uuid or protocol_endpoint.name Existing class protocol_endpoint LUN to bind to the specified class vvol LUN.
- vvol.uuid or vvol.name Existing class vvol LUN to bind to the specified class protocol endpoint LUN.

Related ONTAP commands

• lun bind create

Learn more

• DOC /protocols/san/vvol-bindings

Parameters

Name	Туре	In	Required	Description
return_records	boolean	query	False	The default is false. If set to true, the records are returned. • Default value:

Request Body

Name	Туре	Description
_links	_links	

Name	Туре	Description
count	integer	The vVol binding between any two specific LUNs is reference counted. When a REST POST is executed for a vVol binding that already exists, the vVol binding reference count is incremented. When a REST DELETE is executed, the vVol binding reference count is decremented. Only when the vVol binding count reaches zero, or the query parameter delete_all_references is supplied, is the vVol binding destroyed.
id	integer	The identifier assigned to the vVol binding. The bind identifier is unique amongst all class vvol LUNs bound to the same class protocol_endpoint LUN.
is_optimal	boolean	Indicates if the class procotol_endpoint LUN and the class vvol LUN are on the same cluster node.
protocol_endpoint	protocol_endpoint	The class protocol_endpoint LUN in the vVol binding. Required in POST.
svm	svm	The SVM in which the vVol binding and its LUNs are located. Required in POST.
vvol	vvol	The class vvol LUN in the vVol binding. Required in POST.

```
" links": {
 "self": {
   "href": "/api/resourcelink"
 }
},
"count": 1,
"id": 1,
"is optimal": 1,
"protocol endpoint": {
 " links": {
    "self": {
     "href": "/api/resourcelink"
   }
  },
  "name": "/vol/volume1/lun1",
 "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
},
"svm": {
  " links": {
    "self": {
     "href": "/api/resourcelink"
  },
  "name": "svm1",
 "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
} ,
"vvol": {
 " links": {
   "self": {
     "href": "/api/resourcelink"
   }
 "name": "/vol/volume1/lun1",
 "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
}
```

Response

```
Status: 201, Created
```

Name	Туре	Description
_links	_links	
num_records	integer	The number of records in the response.
records	array[vvol_binding]	

```
" links": {
  "next": {
   "href": "/api/resourcelink"
 },
 "self": {
   "href": "/api/resourcelink"
 }
},
"num records": 1,
"records": {
  " links": {
   "self": {
     "href": "/api/resourcelink"
  },
  "count": 1,
  "id": 1,
  "is optimal": 1,
  "protocol endpoint": {
   " links": {
     "self": {
        "href": "/api/resourcelink"
     }
    "name": "/vol/volume1/lun1",
   "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "svm": {
   " links": {
     "self": {
       "href": "/api/resourcelink"
     }
    },
   "name": "svm1",
   "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "vvol": {
    " links": {
     "self": {
       "href": "/api/resourcelink"
     }
    },
    "name": "/vol/volume1/lun1",
```

```
"uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
}
}
}
```

Headers

Name	Description	Туре
Location	Useful for tracking the resource location	string

Error

Status: Default

ONTAP Error Response Codes

Error Code	Description
2621462	The specified SVM does not exist or is not accessible to the caller.
2621706	Both the SVM UUID and SVM name were supplied, but don't refer to the same SVM.
2621707	No SVM was specified. Either svm.name or svm.uuid must be supplied.
5374238	A LUN in a Snapshot copy was specified.
5374323	The LUN specified as the protocol endpoint LUN is not of class protocol_endpoint.
5374325	The LUN specified as the vVol LUN is not of class vvol.
5374874	The UUID and name supplied for the protocol endpoint of Vvol LUN do not refer to the same LUN. Use to the target property of the error object to differentiate between the protocol endpoint LUN and the vVol LUN.
5374875	The protocol endpoint or vVol LUN was not found or is not accessible to the caller. Use to the target property of the error object to differentiate between the protocol endpoint LUN and the vVol LUN.
5374876	The protocol endpoint or vVol LUN was not found in the SVM. Use to the target property of the error object to differentiate between the protocol endpoint LUN and the vVol LUN.

Error Code	Description
5374924	No protocol endpoint LUN was supplied.
5374925	No vVol LUN was supplied.

Name	Туре	Description
error	error	

Example error

```
{
    "error": {
        "arguments": {
            "code": "string",
            "message": "string"
        },
        "code": "4",
        "message": "entry doesn't exist",
        "target": "uuid"
      }
}
```

Definitions

See Definitions

href

Name	Туре	Description
href	string	

_links

Name	Туре	Description
self	href	

protocol_endpoint

The class protocol_endpoint LUN in the vVol binding. Required in POST.

Name	Туре	Description
_links	_links	
name	string	The fully qualified path name of the LUN composed of the "/vol" prefix, the volume name, the (optional) qtree name, and base name of the LUN. Valid in POST and PATCH.
uuid	string	The unique identifier of the LUN.

svm

The SVM in which the vVol binding and its LUNs are located. Required in POST.

Name	Туре	Description	
_links	_links		
name	string	The name of the SVM.	
uuid	string	The unique identifier of the SVM.	

vvol

The class ${\tt vvol}$ LUN in the vVol binding. Required in POST.

Name	Туре	Description
_links	_links	

Name	Туре	Description
name	string	The fully qualified path name of the LUN composed of the "/vol" prefix, the volume name, the (optional) qtree name, and base name of the LUN. Valid in POST and PATCH.
uuid	string	The unique identifier of the LUN.

vvol binding

A VMware virtual volume (vVol) binding is an association between a LUN of class protocol_endpoint and a LUN of class protocol_endpoint LUNs are mapped to igroups and granted access using the same configuration as class regular LUNs. When a class vvol LUN is bound to a mapped class protocol_endpoint LUN, VMware can access the class vvol LUN through the class protocol endpoint LUN mapping.

Class protocol_endpoint and vvol LUNs support many-to-many vVol bindings. A LUN of one class can be bound to zero or more LUNs of the opposite class.

The vVol binding between any two specific LUNs is reference counted. When a REST POST is executed for a vVol binding that already exists, the vVol binding reference count is incremented. When a REST DELETE is executed, the vVol binding reference count is decremented. Only when the vVol binding count reaches zero, or the query parameter delete_all_references is supplied, is the vVol binding destroyed.

Name	Туре	Description
_links	_links	
count	integer	The vVol binding between any two specific LUNs is reference counted. When a REST POST is executed for a vVol binding that already exists, the vVol binding reference count is incremented. When a REST DELETE is executed, the vVol binding reference count is decremented. Only when the vVol binding count reaches zero, or the query parameter delete_all_references is supplied, is the vVol binding destroyed.

Name	Туре	Description
id	integer	The identifier assigned to the vVolbinding. The bind identifier is unique amongst all class vvolLUNs bound to the same class protocol_endpoint LUN.
is_optimal	boolean	Indicates if the class procotol_endpoint LUN and the class vvol LUN are on the same cluster node.
protocol_endpoint	protocol_endpoint	The class protocol_endpoint LUN in the vVol binding. Required in POST.
svm	svm	The SVM in which the vVol binding and its LUNs are located. Required in POST.
vvol	vvol	The class vvol LUN in the vVol binding. Required in POST.

_links

Name	Туре	Description
next	href	
self	href	

error_arguments

Name	Туре	Description
code	string	Argument code
message	string	Message argument

error

Name	Type Description	
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message

Name	Туре	Description
target	string	The target parameter that caused the error.

Delete a vVol binding

DELETE /protocols/san/vvol-bindings/{protocol endpoint.uuid}/{vvol.uuid}

Introduced In: 9.10

Deletes a vVol binding. The binding between any two specific LUNs is reference counted. When a binding is deleted, the binding count is decremented, but the LUNs remain bound if the resultant reference count is greater than zero. When the binding count reaches zero, the binding is destroyed.

Related ONTAP commands

• lun bind destroy

Learn more

• DOC /protocols/san/vvol-bindings

Parameters

Name	Туре	In	Required	Description
delete_all_reference s	boolean	query	False	Forces deletion of the binding regardless of the reference count value. • Default value:

Response

Status: 200, Ok

Error

Status: Default

ONTAP Error Response Codes

Error Code	Description
5374875	The vVol binding was not found because the protocol endpoint or vVol LUN was not found. Use to the target property of the error object to differentiate between the protocol endpoint LUN and the vVol LUN.
5374926	The vVol binding was not found.

Name	Туре	Description
error	error	

Example error

```
{
  "error": {
    "arguments": {
        "code": "string",
        "message": "string"
    },
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
    }
}
```

Definitions

See Definitions

error_arguments

Name	Туре	Description
code	string	Argument code
message	string	Message argument

error

Name	Туре	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Retrieve a vVol binding

GET /protocols/san/vvol-bindings/{protocol_endpoint.uuid}/{vvol.uuid}

Introduced In: 9.10

Retrieves a vVol binding.

Related ONTAP commands

• lun bind show

Learn more

• DOC /protocols/san/vvol-bindings

Parameters

Name	Туре	In	Required	Description
fields	array[string]	query	False	Specify the fields to return.

Response

Status: 200, Ok

Name	Туре	Description
_links	_links	
count	integer	The vVol binding between any two specific LUNs is reference counted. When a REST POST is executed for a vVol binding that already exists, the vVol binding reference count is incremented. When a REST DELETE is executed, the vVol binding reference count is decremented. Only when the vVol binding count reaches zero, or the query parameter delete_all_references is supplied, is the vVol binding destroyed.
id	integer	The identifier assigned to the vVol binding. The bind identifier is unique amongst all class vvol LUNs bound to the same class protocol_endpoint LUN.
is_optimal	boolean	Indicates if the class procotol_endpoint LUN and the class vvol LUN are on the same cluster node.
protocol_endpoint	protocol_endpoint	The class protocol_endpoint LUN in the vVol binding. Required in POST.
svm	svm	The SVM in which the vVol binding and its LUNs are located. Required in POST.
vvol	vvol	The class vvol LUN in the vVol binding. Required in POST.

```
" links": {
   "self": {
     "href": "/api/resourcelink"
   }
  } ,
 "count": 1,
 "id": 1,
 "is optimal": 1,
 "protocol endpoint": {
   " links": {
      "self": {
       "href": "/api/resourcelink"
     }
    },
    "name": "/vol/volume1/lun1",
   "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
 "svm": {
   " links": {
      "self": {
       "href": "/api/resourcelink"
    },
    "name": "svm1",
   "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  } ,
 "vvol": {
   " links": {
     "self": {
       "href": "/api/resourcelink"
     }
   "name": "/vol/volume1/lun1",
   "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
 }
}
```

Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
4	The vVol binding was not found.

Name	Туре	Description
error	error	

Example error

```
{
   "error": {
        "arguments": {
            "code": "string",
            "message": "string"
        },
        "code": "4",
        "message": "entry doesn't exist",
        "target": "uuid"
      }
}
```

Definitions

See Definitions

href

Name	Туре	Description
href	string	

_links

Name	Туре	Description
self	href	

protocol_endpoint

The class protocol_endpoint LUN in the vVol binding. Required in POST.

Name	Туре	Description
_links	_links	
name	string	The fully qualified path name of the LUN composed of the "/vol" prefix, the volume name, the (optional) qtree name, and base name of the LUN. Valid in POST and PATCH.
uuid	string	The unique identifier of the LUN.

svm

The SVM in which the vVol binding and its LUNs are located. Required in POST.

Name	Туре	Description
_links	_links	
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

vvol

The class ${\tt vvol}$ LUN in the vVol binding. Required in POST.

Name	Туре	Description
_links	_links	

Name	Туре	Description
name	string	The fully qualified path name of the LUN composed of the "/vol" prefix, the volume name, the (optional) qtree name, and base name of the LUN. Valid in POST and PATCH.
uuid	string	The unique identifier of the LUN.

error_arguments

Name	Туре	Description
code	string	Argument code
message	string	Message argument

error

Name	Туре	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

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