Public API – ScheduledActions customers

Table of Contents

Overview of Scheduled Actions

What is ScheduleActions

ScheduleActions gives the ability to manage the lifecycle of resources (VMs mostly) at high scale on a periodic basis. Scheduled Actions provides the following key benefits:

- Scheduling API to schedule operations in the future
- Batch API to submit and process Operations at scale
- Shields the customer from having to deal with throttling
- Higher availability through optimized retry strategies
- Higher throughputs as it automatically adapts to higher scale as Azure improves with no additional changes needed by the customer
- Improves the customer COGS (cost of goods) by using various signals to minimize the time resources are up vs when they are needed

Why use ScheduleActions

- To schedule power operations on resources
- To achieve higher concurrency and scale
- To achieve higher reliability using the ScheduledActions execution engine

How it works

- Customers submit their schedules to ScheduleActions with their list of resources. So, say a customer wants to start 5000 VMs at 10AM tomorrow. The customer would make 50 batch calls of 100 VMs each to submit the schedule of all 5000 VMs
- Customer can also control ScheduleActions retry strategy by passing the retry Policy field (more details below)
- Scheduled Actions will generate an operation for each VM scheduled and return them to the customer
- Customers can cancel the scheduled operation if needed via the "Cancel Operation" API
- At the desired schedule the next day, ScheduleActions will trigger the operations with the maximum concurrency supported by Azure, ScheduleActions will handle all throttling issues that arise, and Scheduled Actions will also do retries on transient errors to ensure high reliability
- Customers can check the status of their operations by polling the ScheduledActions "Get Operations status" API and passing the operations Ids. More on operationStatuses

Background information and Context

SLAs for ScheduledActions

- ScheduledActions is currently certified for 5k concurrent operations in less than 13 minutes in a subscription using our synthetic runs. But the team is working on adding support for 20k concurrent operations per subscription.

API functions

- Batch API to schedule operations on resources at scale. Current maximum per batch is 100
- Schedule operations (Start/Deallocate/Hibernate) against a batch of VMs within a subscription
- Query status (PendingExecution/Executing/Succeeded, Failed, Cancelled, Blocked) of scheduled operations and their error info (if any).
- Cancel scheduled Operations (operations that are already executing cannot be cancelled).

- Currently supported resource types are Virtual Machines

Considerations

- ScheduledActions offers customers control over how the platform will handle retry, this can be configured in number of retries or in minutes, more on retries here
- All Resources in one request need to belong to the same subscription id.
- When calling scheduledActions in a region, ensure that all the resources are in that same region/location
- ScheduledActions triggers operations at the requested deadline with maximum concurrency Azure platform can take and will retry when encountering transient errors and throttling issues to reach the desired resource state.

HTTP Headers returned with response

Cache-Control: no-cache
Pragma: no-cache
Vary: Accept-Encoding
Alt-Svc: h3=":32242"
x-ms-ratelimit-remaining-subscription-writes: 799
x-ms-providerhub-traffic: True
api-supported-versions: 1.0, 2.0, 2024-06-01-preview, 2024-08-15-preview
x-ms-request-id: 62415e19-4516-4b3b-a66d-74d7d2ff8f05
x-ms-correlation-request-id: fa4b8d4f-c077-46d7-ada6-0654ca26004c
x-ms-client-request-id: def86ba1-bd52-4b4e-aee9-6f9a7e121d0a
x-ms-ratelimit-remaining-subscription-global-writes: 11999
x-ms-routing-request-id: EASTUS:20241014T164432Z:fa4b8d4f-c077-46d7-ada6-0654ca26004c
Strict-Transport-Security: max-age=31536000; includeSubDomains
X-Content-Type-Options: nosniff
X-Cache: CONFIG_NOCACHE
X-MSEdge-Ref: Ref A: D7710FA925F44D38A92F2ACD3F598003 Ref B: MNZ221060618023 Ref C: 2024-10-14T16:44:28Z
Date: Mon, 14 Oct 2024 16:44:31 GMT

Onboarding

Customers must register their subscription to Microsoft.ComputeSchedule resource provider, follow this Resource providers and resource types - Azure Resource Manager | Microsoft Learn guide for doing this through portal or programmatically.

Limitations

Regional limitation

Public cloud only

Power management operations supported

1. Start
2. Deallocate
3. Hibernate-Resume

Getting started with ScheduledActions

How to onboard

Evaluate different options for consuming compute schedule API

- PowerShell
- SDK (supported in following languages)
    - .NET (SDK Link)
    - Java (SDK Link)
    - Python (SDK Link)
    - Go (SDK Link)
    - Javascript (SDK Link)
- CLI
- REST API

Start consuming ScheduleActions API

Recommended Usage

Below are some best practices to follow when using Scheduledactions:

1. Leverage the batching feature as much as possible to minimize throttling at ARM level for submitting operations and checking the operations statuses. Max 100 per request
2. To further prevent throttling, when repeatedly polling for operation status on virtual machines, we recommend not polling on operations in a terminal state, that is not polling operations where Operation.State is Succeeded, Failed or Cancelled.
    - **Example:** If 100 operations sent in a single request are being polled on, and the initial poll result returns 39 in a terminal state, the next polling request should be for the 61 that are not yet in a terminal state
3. For each request, we recommend parsing the results as follows:
    A. Check the top-level error code for request level errors such as validation errors or errors from partner services, if this is not null, an error has occurred at the request level and the schedule request was not processed
    B. If the top-level error is null, proceed to check Operation.State
        i. If Operation.State is Successful, then the Start/Deallocate/Hibernate operation has succeeded, and the virtual machine is in the desired state. In this case the ResourceOperationError will be null
        ii. If Operation.State is Failed, then the operation on the virtual machine has failed and the ResourceOperationError will be populated with the reason for the failure
        iii. If Operation.State is Cancelled, then the operation on the virtual machine was cancelled and the ResourceOperationError will be populated with the cancellation details

API Overview

Overview

Below are the operations that can be performed in ScheduledActions

API	Endpoint	Http Method
Schedule Virtual Machine Start at datetime in future	VirtualMachinesSubmitStart endpoint	POST
Schedule Virtual Machine Deallocate at datetime in future	VirtualMachinesSubmitDeallocate endpoint	POST
Schedule Virtual Machine Hibernate at datetime in future	VirtualMachinesSubmitHibernate endpoint	POST
Execute Virtual Machine Start (triggers operation as soon as we get the request)	VirtualMachinesExecuteStart endpoint	POST
Execute Virtual Machine Deallocate (triggers operation as soon as we get the request)	VirtualMachinesExecuteDeallocate endpoint	POST
Execute Virtual Machine Hibernate (triggers operation as soon as we get the request)	VirtualMachinesExecuteHibernate endpoint	POST
Polling end point to read status of operations	VirtualMachinesGetOperationStatus endpoint	POST
Cancel a previously submitted (start/deallocate/hibernate) request	VirtualMachinesCancelOperations endpoint	POST
For additional details on operation errors (like transient errors encountered, additional logs)	VirtualMachinesGetOperationErrors endpoint	POST

API example

Schedule Virtual Machine Starts API

Description

The virtualMachinesSubmitStart API is used to schedule the start of a batch of resources against a given deadline.

Endpoint Sample

https://management.azure.com/subscriptions/{subscriptionId}/providers/Microsoft.ComputeSchedule/locations/{locationparameter}/virtualMachinesSubmitStart?api-version=2024-08-15-preview

Parameters

- **subscriptionId**: Client SubscriptionId for the batch of resources.
- **locationparameter:** Enter the known location of the resources.

Request Body

- **Schedule**: These are the values related to the schedule for the request
    - **Deadline**: Time schedule for when to trigger the operation. Operation deadline in UTC. Deadline of operation is allowed up to 14 days in future.
    - **Timezone**: Timezone for the request, in this iteration, ScheduledActions only supports UTC for now. With more support being added
    - **DeadlineType**: Operation deadline type.
        - **InitiateAt** – Operations with this deadline type are initiated at the specified deadline time (deadlineUtc). This deadline type is valid for all virtual machine operation types.
- **Resources**: These are the resources to schedule a start operation on at the given deadline.
    - Ids: This is a list of the full Azure resource name. The number of these resources must be less than or equal to 100 per request.
- **ExecutionParameters**: These are parameters the client can add to support the request, this property is optional and can be omitted.
    - **RetryPolicy:** These are values entered by customers that define customizable constraints for retriable errors, these values are optional and can be omitted, where they are not entered, ScheduledActions will use default values.
    - Retry policy contains two parts, Clients can provide both or either one of the following
        - **RetryCount**: The retry count is an integer of how many times ScheduledActions should retry retriable errors, if this value is not explicitly set by the client, the default value of 7 is used.
        - **RetryWindowInMinutes**: The retry window value, in minutes, that ScheduledActions should keep retrying on for retriable errors, if this value is not explicitly set by the client, the default value of 90 minutes is used.
- **CorrelationId**: Client generated GUID for internal debugging.

Response codes

- Server response code is 200 means scheduling operation has been successfully registered in the system.
- The results field shows a result of type **StartOperationResponse** containing a description of the operation, the type of the operation, location from the user and a list containing the results from each resource operation.

Example

HTTP Request

```
{
  "schedule": {
    "deadline": "2023-12-12T19:01:10.872Z",
    "timeZone": "utc",
    "deadlineType": "InitiateAt"
  },
  "resources": {
    "ids": [
      "subscriptions/2a4bcaa1-8653-493a-b3e2-
41373cee3c/resourceGroups/ScheduledActions_MyResourceGroup/providers/Microsoft.Compute/virtualMachines/
MyVM-2"
    ]
  },
  "executionParameters": {
```

```
    "RetryPolicy":
      "RetryWindowInMinutes": 45,
    }
  },
  "correlationId": "3fa85f64-5717-4562-b3fc-2c963f66afa6"
}
```


HTTP Response


```
{
  "description": "Start Resource request",
  "type": "virtualMachinesSubmitStart",
  "location": "westus",
  "results": [
   {
    "resourceId": "subscriptions/2a4bcaa1-8653-493a-b3e2-
41373cee3c/resourceGroups/ScheduledActions_MyResourceGroup/providers/Microsoft.Compute/virtualMachines/
MyVM-2",
     "errorCode": null,
     "errorDetails": null,
     "operation": {
      "operationId": "9a51d5df-23a1-4aa9-aa42-e4baef9e0f64",
      "resourceId": "subscriptions/2a4bcaa1-8653-493a-b3e2-
41373cee3c/resourceGroups/ScheduledActions_MyResourceGroup/providers/Microsoft.Compute/virtualMachines/
MyVM-2",
       "opType": "Start",
       "subscriptionId": "700935bc-adf2-4176-b9ad-c571731c09fc",
       "deadline": "2023-12-12T19:01:10.872+00:00",
       "deadlineType": "InitiateAt",
       "state": "PendingScheduling",
       "timeZone": "utc",
       "resourceOperationError": null,
       "completedAt": null,
       "retryPolicy": {
       "retryWindowInMinutes": 45,
       "retryCount": 7,
       },
     }
   }
  ]
}
```


Schedule Virtual Machines Deallocate API

Description

The VirtualMachineSubmiteDeallocate API is used to schedule deallocation for a batch of VMs at a given deadline.

Endpoint Sample

https://management.azure.com/subscriptions/{subscriptionId}/providers/Microsoft.ComputeSchedule/locations/{locationparameter}/virtualMachinesSubmitDeallocate?api-version=2024-08-15-preview

Parameters

- **subscriptionId**: Client SubscriptionId for the batch of resources.

- **locationparameter:** Enter the known location of the resources.

Request Body

- **Schedule**: These are the values related to the schedule for the request
  - **Deadline**: Time schedule for when to trigger the operation. Operation deadline in UTC. Deadline of operation is allowed up to 14 days in future.
  - **Timezone**: Timezone for the request, in this iteration, ScheduledActions only supports UTC
  - **DeadlineType**: Should be set to initiateAt
- **Resources**: These are the resources to schedule a start operation on at the given deadline.
  - Ids: This is a list of the full Azure resource name. The number of these resources must be less than or equal to 100 per request and registered under the customer's subscriptionId.
- **ExecutionParameters**: These are parameters the client can add to support the request, this property is optional and can be omitted.
  - **RetryPolicy:** These are values entered by customers that define customizable constraints for retriable errors, these values are optional and can be omitted, where they are not entered, ScheduledActions will use default values.
  - **RetryCount**: The retry count is an integer of how many times ScheduledActions should retry retriable errors, if this value is not explicitly set by the client, the default value of 7 is used.
  - **RetryWindowInMinutes**: The retry window value, in minutes, that ScheduledActions should keep retrying on for retriable errors, if this value is not explicitly set by the client, the default value of 90 minutes is used.
- **CorrelationId**: Client generated GUID for internal debugging.

Response codes

Server response code is 200 means scheduling operation has been successfully registered in the system.

Example

HTTP Request

```
{
  "schedule": {
    "deadline": "2023-12-12T19:13:52.067Z",
    "timeZone": "utc",
    "deadlineType": "InitiateAt"
  },
  "resources": {
    "ids": [
 "subscriptions/2a4bcaa1-8653-493a-b3e2-
41373cee3c/resourceGroups/ScheduledActions_MyResourceGroup/providers/Microsoft.Compute/virtualMachines/
MyVM-3"
    ]
  },
  "executionParameters": {
    "RetryPolicy":{
       "RetryWindowInMinutes": 50,
    }
  "correlationId": "3fa85f64-5717-4562-b3fc-2c963f66afa6"
 }
```

HTTP Response

```
{
  "description": "Deallocate Resource request",
```

```
  "type": "virtualMachinesSubmitDeallocate",
  "location": "westus",
  "results": [
   {
    "resourceId": "subscriptions/2a4bcaa1-8653-493a-b3e2-
41373cee3c/resourceGroups/ScheduledActions_MyResourceGroup/providers/Microsoft.Compute/virtualMachines/
MyVM-3",
    "errorCode": null,
    "errorDetails": null,
    "operation": {
     "operationId": "d204a73d-7c3a-4469-9eba-4fc880b00d47",
     "resourceId": "subscriptions/2a4bcaa1-8653-493a-b3e2-
41373cee3c/resourceGroups/ScheduledActions_MyResourceGroup/providers/Microsoft.Compute/virtualMachines/
MyVM-3",
      "opType": "Deallocate",
      "subscriptionId": "700935bc-adf2-4176-b9ad-c571731c09fc",
      "deadline": "2023-12-12T19:13:52.067+00:00",
      "deadlineType": "InitiateAt",
      "state": "PendingScheduling",
      "timeZone": "utc",
      "resourceOperationError": null,
      "completedAt": null,
      "retryPolicy": {
      "retryWindowInMinutes": 50
      "retryCount": 7,
      },
    }
   }
  ]
 }
```


Schedule Virtual Machines Hibernate API

Description:

The VirtualMachineSubmitHibernateAPI is used to schedule hibernation of a batch of VMs at a given deadline.

Endpoint Sample

https://management.azure.com/subscriptions/{subscriptionId}/providers/Microsoft.ComputeSchedule/locations/{locationparameter}/virtualMachinesSubmitHibernate?api-version=2024-08-15-preview

Parameters

- **subscriptionId**: Client SubscriptionId for the batch of resources.
- **locationparameter:** Enter the known location of the resources.

Request Body

- **Schedule**: These are the values related to the schedule for the request
    - **Deadline**: Time schedule for when to trigger the operation. Operation deadline in UTC. Deadline of operation is allowed up to 14 days in future.
    - **Timezone**: Timezone for the request, in this iteration, ScheduledActions only supports UTC

    - **DeadlineType**: operation deadline type should be set to **InitiateAt**
- **Resources**: These are the resources to schedule a start operation on at the given deadline.
    - Ids: This is a list of the full Azure resource name. The number of these resources must be less than or equal to 100 per request and registered under the customer's subscriptionId.
- **ExecutionParameters**: These are parameters the client can add to support the request, this property is optional and can be omitted.
    - **RetryPolicy:** These are values entered by customers that define customizable constraints for retriable errors, these values are optional and can be omitted, where they are not entered, ScheduledActions will use default values.
    - **RetryCount**: The retry count is an integer of how many times ScheduledActions should retry retriable errors, if this value is not explicitly set by the client, the default value of 7 is used.
    - **RetryWindowInMinutes**: The retry window value, in minutes, that ScheduledActions should keep retrying on for retriable errors, if this value is not explicitly set by the client, the default value of 90 minutes is used.
- **CorrelationId**: Client generated GUID for internal debugging.

Response codes

Server response code is 200 means scheduling operation has been successfully registered in the system.

Example

HTTP Request

```
{
  "schedule": {
    "deadline": "2023-12-12T19:28:07.351Z",
    "timeZone": "utc",
    "deadlineType": "InitiateAt"
  },
  "resources": {
    "ids": [
 "subscriptions/2a4bcaa1-8653-493a-b3e2-
41373cee3c/resourceGroups/ScheduledActions_MyResourceGroup/providers/Microsoft.Compute/virtualMachines/
MyVM-4"
    ]
  },
  "executionParameters": {
    "RetryPolicy":{
       "RetryCount": 4,
       "RetryWindowInMinutes": 90,
    }
  },
  "correlationId": "3fa85f64-5717-4562-b3fc-2c963f66afa6"
 }
```

HTTP Response

```
{
  "description": "Hibernate Resource request",
  "type": "virtualMachinesSubmitHibernate",
  "location": "westus",
  "results": [
    {
      "resourceId": "subscriptions/2a4bcaa1-8653-493a-b3e2-
41373cee3c/resourceGroups/ScheduledActions_MyResourceGroup/providers/Microsoft.Compute/virtualMachines/
```

```
MyVM-4",
    "errorCode": null,
    "errorDetails": null,
    "operation": {
     "operationId": "18a618f0-d24f-4633-bc45-cbd8229262ee",
     "resourceId": "subscriptions/2a4bcaa1-8653-493a-b3e2-
41373cee3c/resourceGroups/ScheduledActions_MyResourceGroup/providers/Microsoft.Compute/virtualMachines/
MyVM-4",
      "opType": "Hibernate",
      "subscriptionId": "700935bc-adf2-4176-b9ad-c571731c09fc",
      "deadline": "2023-12-12T19:28:07.351+00:00",
      "deadlineType": "InitiateAt",
      "state": "PendingScheduling",
      "timeZone": "utc",
      "resourceOperationError": null,
      "completedAt": null,
      "retryPolicy": {
      "retryWindowInMinutes": 90
      "retryCount": 4,
      },
    }
   }
  ]
}
```


Execute VirtualMachines Start API

Description

The VirtualMachinesExecuteStart endpoint is used to start a batch of resources, this endpoint allows customers to start resources immediately. *For this endpoint, there is no need for the customer to enter schedule information*.

Endpoint Sample

https://management.azure.com/subscriptions/{subscriptionId}/providers/Microsoft.ComputeSchedule/locations/{locationparameter}/virtualMachinesExecuteStart?api-version=2024-08-15-preview

Parameters

- **subscriptionId**: Client SubscriptionId for the batch of resources.
- **locationparameter:** Enter the known location of the resources.

Request Body

- **Resources**: These are the resources to schedule a start operation on at the given deadline.
    - Ids: This is a list of the full Azure resource name. The number of these resources must be less than or equal to 100 and registered under the customer's subscriptionId.
- **ExecutionParameters**: These are parameters the client can add to support the request, this property is optional and can be omitted.
    - **RetryPolicy:** These are values entered by customers that define customizable constraints for retriable errors, these values are optional and can be omitted, where they are not entered, ScheduledActions will use default values.
    - **RetryCount**: The retry count is an integer of how many times ScheduledActions should retry retriable errors, if this value is not explicitly set by the client, the default value of 7 is used.

- **RetryWindowInMinutes**: The retry window value, in minutes, that ScheduledActions should keep retrying on for retriable errors, if this value is not explicitly set by the client, the default value of 90 minutes is used.

- **CorrelationId**: Client generated GUID for internal debugging.

Response codes

- Server response code is 200 means scheduling operation has been successfully registered in the system.

Example

HTTP Request

```
{
  "resources": {
   "ids": [
 "subscriptions/2a4bcaa1-8653-493a-b3e2-
41373cee3c/resourceGroups/ScheduledActions_MyResourceGroup/providers/Microsoft.Compute/virtualMachines/
MyVM-6"
   ]
  },
  "executionParameters": {
   "RetryPolicy":{
      "RetryCount": 4,
      "RetryWindowInMinutes": 60,
   }
  },
  "correlationId": "3fa85f64-5717-4562-b3fc-2c963f66afa6"
 }
```

HTTP Response

```
{
  "description": "Start Resource request",
  "type": "virtualMachinesExecuteStart",
  "location": "westus",
  "results": [
   {
    "resourceId": "subscriptions/2a4bcaa1-8653-493a-b3e2-
41373cee3c/resourceGroups/ScheduledActions_MyResourceGroup/providers/Microsoft.Compute/virtualMachines/
MyVM-6",
     "errorCode": null,
     "errorDetails": null,
     "operation": {
      "operationId": "def4a743-f659-457f-94c8-e1d224d9e352",
      "resourceId": "subscriptions/2a4bcaa1-8653-493a-b3e2-
41373cee3c/resourceGroups/ScheduledActions_MyResourceGroup/providers/Microsoft.Compute/virtualMachines/
MyVM-6",
      "opType": "Start",
      "subscriptionId": "700935bc-adf2-4176-b9ad-c571731c09fc",
      "deadline": "2023-12-12T18:11:08.2829625+00:00",
      "deadlineType": "InitiateAt",
      "state": "PendingScheduling",
      "timeZone": "UTC",
      "resourceOperationError": null,
      "completedAt": null
      "retryPolicy": {
```

```
      "retryWindowInMinutes": 60,
      "retryCount": 4,
      },
     }
    }
   ]
}
```

Execute VirtualMachines Deallocate API

Description

The VirtualMachinesExecuteDeallocate endpoint is used to deallocate a batch of resources, this endpoint allows customers to deallocate resources immediately. *For this endpoint, there is no need for the customer to enter schedule information*

Endpoint Sample

https://management.azure.com/subscriptions/{subscriptionId}/providers/Microsoft.ComputeSchedule/locations/{locationparameter}/virtualMachinesExecuteDeallocate?api-version=2024-08-15-preview

Parameters

- **subscriptionId**: Client SubscriptionId for the batch of resources.
- **locationparameter:** Enter the known location of the resources.

Request Body

- **Resources**: These are the resources to schedule a start operation on at the given deadline.
    - Ids: This is a list of the full Azure resource name. The number of these resources must be less than or equal to 100 and registered under the customer's subscriptionId.
- **ExecutionParameters**: These are parameters the client can add to support the request, this property is optional and can be omitted.
    - **RetryPolicy:** These are values entered by customers that define customizable constraints for retriable errors, these values are optional and can be omitted, where they are not entered, ScheduledActions will use default values.
    - **RetryCount**: The retry count is an integer of how many times ScheduledActions should retry retriable errors, if this value is not explicitly set by the client, the default value of 7 is used.
    - **RetryWindowInMinutes**: The retry window value, in minutes, that ScheduledActions should keep retrying on for retriable errors, if this value is not explicitly set by the client, the default value of 90 minutes is used.
- **CorrelationId**: Client generated GUID for internal debugging.

Response codes

Server response code is 200 means scheduling operation has been successfully registered in the system.

Example

HTTP Request

```
{
  "schedule": {
    "deadline": "2023-12-12T19:28:07.351Z",
    "timeZone": "utc",
    "deadlineType": "InitiateAt"
  },
  "resources": {
```

```
   "ids": [
 "subscriptions/2a4bcaa1-8653-493a-b3e2-
41373cee3c/resourceGroups/ScheduledActions_MyResourceGroup/providers/Microsoft.Compute/virtualMachines/My
VM-4"
   ]
  },
  "executionParameters": {
   "RetryPolicy":{
     "RetryCount": 4,
     "RetryWindowInMinutes": 90,
   }
  },
  "correlationId": "3fa85f64-5717-4562-b3fc-2c963f66afa6"
 }
```

HTTP Response

```
{
  "description": "Hibernate Resource request",
  "type": "virtualMachinesSubmitHibernate",
  "location": "westus",
  "results": [
   {
    "resourceId": "subscriptions/2a4bcaa1-8653-493a-b3e2-
41373cee3c/resourceGroups/ScheduledActions_MyResourceGroup/providers/Microsoft.Compute/virtualMachines/My
VM-4",
     "errorCode": null,
     "errorDetails": null,
     "operation": {
      "operationId": "18a618f0-d24f-4633-bc45-cbd8229262ee",
      "resourceId": "subscriptions/2a4bcaa1-8653-493a-b3e2-
41373cee3c/resourceGroups/ScheduledActions_MyResourceGroup/providers/Microsoft.Compute/virtualMachines/My
VM-4",
      "opType": "Hibernate",
      "subscriptionId": "700935bc-adf2-4176-b9ad-c571731c09fc",
      "deadline": "2023-12-12T19:28:07.351+00:00",
      "deadlineType": "InitiateAt",
      "state": "PendingScheduling",
      "timeZone": "utc",
      "resourceOperationError": null,
      "completedAt": null,
      "retryPolicy": {
      "retryWindowInMinutes": 90
      "retryCount": 4,
      },
     }
   }
  ]
 }
```

Execute VirtualMachines Hibernate API

Description

The VirtualMachinesExecuteHibernate endpoint is used to hibernate a batch of resources, this endpoint allows customers to hibernate resources immediately. *For this endpoint, there is no need for the customer to enter schedule information.*

Endpoint Sample

https://management.azure.com/subscriptions/{subscriptionId}/providers/Microsoft.ComputeSchedule/locations/{locationparameter}/virtualMachinesExecuteHibernate?api-version=2024-08-15-preview

Parameters

- **SubscriptionId**: Client SubscriptionId for the batch of resources.
- **Locationparameter:** Enter the known location of the resources

Request Body

- **Resources**: These are the resources to run the executeHibernate operation on.
- **Ids**: This is a list of the full Azure resource name. The number of these resources must be less than or equal to 100 and registered under the customer's subscriptionId.
- **ExecutionParameters**: These are parameters the client can add to support the request, this property is optional and can be omitted.
- **RetryPolicy:** These are values entered by customers that define customizable constraints for retriable errors, these values are optional and can be omitted, where they are not entered, ScheduledActions will use default values.
- **RetryCount**: The retry count is an integer of how many times ScheduledActions should retry on retriable errors, if this value is not explicitly set by the client, the default value of 7 is used.
- **RetryWindowInMinutes**: The retry window value, in minutes, that ScheduledActions should keep retrying for retriable errors, if this value is not explicitly set by the client, the default value of 90 minutes is used.
- **CorrelationId**: Client generated GUID for internal debugging.

Response codes

Server response code is 200 means execute operation has been successfully registered in the system.

Example

HTTP Request

```
{
  "resources": {
    "ids": [
"subscriptions/2a4bcaa1-8653-493a-b3e2-
41373cee3c/resourceGroups/ScheduledActions_MyResourceGroup/providers/Microsoft.Compute/virtualMachines/
MyVM-8"
    ]
  },
  "executionParameters": {
    "RetryPolicy":{
      "RetryCount": 3,
      "RetryWindowInMinutes": 95,
    }
  },
  "correlationId": "3fa85f64-5717-4562-b3fc-2c963f66afa6"
}
```

HTTP Response


```
{
  "description": "Hibernate Resource request",
  "type": "virtualMachinesExecuteHibernate",
  "location": "westus",
  "results": [
   {
    "resourceId": "subscriptions/2a4bcaa1-8653-493a-b3e2-
41373cee3c/resourceGroups/ScheduledActions_MyResourceGroup/providers/Microsoft.Compute/virtualMachines/
MyVM-8",
    "errorCode": null,
    "errorDetails": null,
    "operation": {
     "operationId": "6905e045-b398-412a-87d3-f69ab96987bc",
     "resourceId": "subscriptions/2a4bcaa1-8653-493a-b3e2-
41373cee3c/resourceGroups/ScheduledActions_MyResourceGroup/providers/Microsoft.Compute/virtualMachines/
MyVM-8",
     "opType": "Hibernate",
     "subscriptionId": "700935bc-adf2-4176-b9ad-c571731c09fc",
     "deadline": "2023-12-12T18:26:46.3921679+00:00",
     "deadlineType": "InitiateAt",
     "state": "PendingScheduling",
     "timeZone": "UTC",
     "resourceOperationError": null,
     "completedAt": null,
     "retryPolicy": {
     "retryWindowInMinutes": 95,
     "retryCount": 3,
     },
    }
   }
 ]
}
```


Get Operation Status API

Description

The VirtualMachinesGetOperationStatus endpoint is used to query operations status on virtual machines by their operationIds.

Endpoint Sample

https://management.azure.com/subscriptions/{subscriptionId}/providers/Microsoft.ComputeSchedule/locations/{locationparameter}/virtualMachinesGetOperationStatus?api-version=2024-08-15-preview

Parameters

- **subscriptionId**: Client SubscriptionId for the batch of resources.
- **locationparameter:** Enter the known location of the resources.

Request Body

- **operationIds**: A list of operationIds for the resources started/hibernated/deallocated. The number of operationIds per request must be less than or equal to 100.
- **CorrelationId**: Client generated GUID for internal debugging.

Response codes

Server response code is 200 means get operation status operation has been successfully registered in the system.

- In case of error, an HTTP error code of value 400+ will be returned based on the error type (404, 400 etc..).The results field shows a list of type ResourceOperation for each operationId associated with a virtual machine.

Exceptions

- BadRequestException.
- SubscriptionNotFoundException.
- ServiceUnavailableException
- Non-ScheduledOperationsBlockedException : Unique object result of structure:
    - Code: NonSchedulingOperationsBlockedException
    - Message: Non-Scheduling Operations are currently being blocked.
    - Retry-After Header
    - HttpStatusCode : 503

Example

HTTP Request


```
{
  "operationIds": [
    "d204a73d-7c3a-4469-9eba-4fc880b00d47", "9a51d5df-23a1-4aa9-aa42-e4baef9e0f64"
  ],
  "correlationId": "3fa85f64-5717-4562-b3fc-2c963f66afa6"
}
```


HTTP Response


```
{
  "results": [
    {
      "resourceId": "subscriptions/2a4bcaa1-8653-493a-b3e2-
41373cee3c/resourceGroups/ScheduledActions_MyResourceGroup/providers/Microsoft.Compute/virtualMachines/
MyVM-3",
      "errorCode": null,
      "errorDetails": null,
      "operation": {
        "operationId": "d204a73d-7c3a-4469-9eba-4fc880b00d47",
        "resourceId": "subscriptions/2a4bcaa1-8653-493a-b3e2-
41373cee3c/resourceGroups/ScheduledActions_MyResourceGroup/providers/Microsoft.Compute/virtualMachines/
MyVM-3",
        "opType": "Deallocate",
        "subscriptionId": "700935bc-adf2-4176-b9ad-c571731c09fc",
        "deadline": "2023-12-12T19:13:52.067+00:00",
        "deadlineType": "InitiateAt",
        "state": "PendingScheduling",
        "timeZone": "",
        "resourceOperationError": null,
        "completedAt": null,
        "retryPolicy": {
        "retryWindowInMinutes": 50,
        "retryCount": 7,
        },
      }
    },
    {
```

```
    "resourceId": "subscriptions/2a4bcaa1-8653-493a-b3e2-
41373cee3c/resourceGroups/ScheduledActions_MyResourceGroup/providers/Microsoft.Compute/virtualMachines/
MyVM-2",
    "errorCode": null,
    "errorDetails": null,
    "operation": {
     "operationId": "9a51d5df-23a1-4aa9-aa42-e4baef9e0f64",
     "resourceId": "subscriptions/2a4bcaa1-8653-493a-b3e2-
41373cee3c/resourceGroups/ScheduledActions_MyResourceGroup/providers/Microsoft.Compute/virtualMachines/
MyVM-2",
      "opType": "Start",
      "subscriptionId": "700935bc-adf2-4176-b9ad-c571731c09fc",
      "deadline": "2023-12-12T19:01:10.872+00:00",
      "deadlineType": "InitiateAt",
      "state": "PendingScheduling",
      "timeZone": "",
      "resourceOperationError": null,
      "completedAt": null,
      "retryPolicy": {
      "retryWindowInMinutes": 45,
      "retryCount": 7,
      },
    }
   }
 ]
}
```


Cancel an already Scheduled Operation API

Description

The VirtualMachinesCancelOperations is used to cancel any future operations against the given batch of resources. It only cancels operations that haven't been triggered.

Endpoint Sample

https://management.azure.com/subscriptions/{subscriptionId}/providers/Microsoft.ComputeSchedule/locations/{locationparameter}/virtualMachinesCancelOperations?api-version=2024-08-15-preview

Parameters

- **subscriptionId**: Client SubscriptionId for the batch of resources.
- **locationparameter:** Enter the known location of the resources.

Request Body:

- **operationIds**: A list of operationIds for the resources started/hibernated/deallocated. The number of operationIds per request must be less than or equal to 100.
- **CorrelationId**: Client generated GUID for internal debugging.

Response codes

Server response code is 200 means cancelling operation has been successfully registered in the system.

Example

HTTP Request


```
{
 "operationIds": [
```

```
"d204a73d-7c3a-4469-9eba-4fc880b00d47", "9a51d5df-23a1-4aa9-aa42-e4baef9e0f64"
 ],
 "correlationId": "3fa85f64-5717-4562-b3fc-2c963f66afa6"
}
```


HTTP Response


```
{
 "results": [
  {
   "resourceId": "subscriptions/2a4bcaa1-8653-493a-b3e2-
41373cee3c/resourceGroups/ScheduledActions_MyResourceGroup/providers/Microsoft.Compute/virtualMachines/
MyVM-9",
    "errorCode": null,
    "errorDetails": null,
    "operation": {
     "operationId": "b5368034-df16-4ac1-8360-ba7d271a34de",
     "resourceId": "subscriptions/2a4bcaa1-8653-493a-b3e2-
41373cee3c/resourceGroups/ScheduledActions_MyResourceGroup/providers/Microsoft.Compute/virtualMachines/
MyVM-9",
      "opType": "Hibernate",
      "subscriptionId": "700935bc-adf2-4176-b9ad-c571731c09fc",
      "deadline": "2023-12-13T22:25:31.719+00:00",
      "deadlineType": "InitiateAt",
      "state": "OperationCancelled",
      "timeZone": "",
      "resourceOperationError":
        {
         "errorCode": "OperationCancelled",
         "errorDetails": "Operation b5368034-df16-4ac1-8360-ba7d271a34de was cancelled by user"
        },
      "completedAt": null,
      "retryPolicy": {
      "retryWindowInMinutes": 70,
      "retryCount": 5,
      },
    }
  },
  {
   "resourceId": "subscriptions/2a4bcaa1-8653-493a-b3e2-
41373cee3c/resourceGroups/ScheduledActions_MyResourceGroup/providers/Microsoft.Compute/virtualMachines/
MyVM-10",
    "errorCode": null,
    "errorDetails": null,
    "operation": {
     "operationId": "e528fddd-d9a3-41c7-8802-97cf7acea0b6",
     "resourceId": "subscriptions/2a4bcaa1-8653-493a-b3e2-
41373cee3c/resourceGroups/ScheduledActions_MyResourceGroup/providers/Microsoft.Compute/virtualMachines/
MyVM-10",
      "opType": "Start",
      "subscriptionId": "700935bc-adf2-4176-b9ad-c571731c09fc",
      "deadline": "2023-12-13T22:29:14.839+00:00",
      "deadlineType": "InitiateAt",
```

```
    "state": "OperationCancelled",
    "timeZone": "",
    "resourceOperationError":
      {
       "errorCode": "OperationCancelled",
       "errorDetails": "Operation e528fddd-d9a3-41c7-8802-97cf7acea0b6 was cancelled by user"
      },
    "completedAt": null,
    "retryPolicy": {
    "retryWindowInMinutes": 50,
    "retryCount": 7,
    },
   }
  }
 ]
}
```


Operation States

Following are possible values that client can expect in Operation status field in response depending on state of operation life cycle

- PendingScheduling – upon creation an operation is in pending scheduling state
- Executing – when ScheduledActions starts executing the operation, it will be in executing state
- Succeeded – operation successfully completed
- Failed- Operation failed (The ResourceOperation field in the response will contain more details)
- Cancelled – Operation was cancelled by client.
- Blocked – Operation is currently blocked because of an outage downstream in compute stack (this won't be commonly used, since only during regression and major outages, platform will block operation execution to shield further downstream services), but this means we have detected an outage in one of the services that we depend on to complete this operation and in order to prevent further load on an already strained system we are temporarily going to block execution. We will periodically keep checking and if the outage is resolved we will return to normal processing.

FAQs

Q1. Are these schedules persistent?

No, these are one off schedule once the desired action is completed or cancelled it won't be triggered again. For persistent schedules we are working on a new feature (Auto actions) that is expected to be live end of November.