



Turbonomic Actions for ServiceNow®

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Introducing Turbonomic Actions

Turbonomic Actions is an integration that brings the power of Turbonomic to your ServiceNow® Change Management application. You can use Turbonomic Actions to track the actions that Turbonomic recommends, or to create new Change Requests (CRs) in your ServiceNow instance.

Note that Turbonomic constantly analyzes your application environment. For the Configuration Items (CIs) that you specify, Turbonomic can recommend actions to:

- **Assure application performance**
Prevent bottlenecks, provision physical resources, upsize VMs, and prioritize workload to ensure applications always have the resources they need.
- **Ensure efficient use of resources**
Consolidate workload, downsize VMs, prevent VM sprawl, and take advantage of pricing plans on the cloud.
- **Ensure compliance**
Keep workload placement and resource allocation compliant with your business rules.

Turbonomic Actions integrates your ServiceNow account with Turbonomic to:

- **Record changes in your environment**
Before and after Turbonomic executes a change in your environment, Turbonomic Actions can log it as an Action Record.
- **Open Change Requests (CRs) when a change is needed**
For a Turbonomic action that is configured to integrate with your ServiceNow account, Turbonomic Actions opens a CR in your Change Management workflow. You then process that CR through normal channels to get the proper approval. When the change is approved, Turbonomic Actions then directs Turbonomic to execute the change. Turbonomic Actions then logs the change as an Action Record in ServiceNow.

To use this integration of Turbonomic with ServiceNow, a user with an administrator role installs the *Turbonomic Actions* application in your ServiceNow Cloud instance. Then a Turbonomic administrator configures the connection between Turbonomic and your ServiceNow Cloud instance.

The Turbonomic product analyzes your environment and generates actions that will keep your environment healthy. It sends the actions to Turbonomic Actions, which enters them into ServiceNow as Change Requests (CR) or Action Records. When a CR is approved according to your workflow, Turbonomic executes the change and returns the result.

This document describes the Turbonomic Actions application in the following sections:

- [Installing the Turbonomic Actions Application \(page 7\)](#)
- [Turbonomic Actions Configuration \(page 9\)](#)
- [Using the Turbonomic Actions Application for ServiceNow \(page 16\)](#)

Turbonomic Actions Processing

Turbonomic Actions creates a new Change Request (CR) in ServiceNow when Turbonomic generates an action on a Configuration Item (CI) that you manage in ServiceNow.

Remember that Turbonomic is a platform you can use to keep your applications running and healthy, with access to the resources they need. It measures access to resources in terms of *Risk Index*. The higher this index for a resource, the more heavily the resource is utilized, the greater the delay for consumers of that resource, and the greater the risk to the QoS of your applications. On the other hand, if the index is too low, it indicates that the resources are underutilized. This could be an opportunity to save on cost by consolidating more workloads on fewer hosts.

When changes to the Risk Index indicate your environment is moving out of a healthy state, Turbonomic generates actions to address the issues before they become a problem.

Turbonomic Actions integrates this analysis with your ServiceNow workflows. It turns an action in Turbonomic into a CR in ServiceNow. When you approve the given CR, this integration directs Turbonomic to execute the action at the appropriate time. You can also set up the workflow to have Turbonomic execute the action and return the results.

The processing flow for a generated CR is as follows:

1. Turbonomic generates an action.

The Turbonomic product analyzes your environment to track the availability of resources that your applications need to maintain their QoS. When Turbonomic recognizes an issue, it generates an action to correct the issue.

2. Turbonomic sends the action to Turbonomic Actions in ServiceNow.

An administrator configures Turbonomic so that it knows which entities you are managing in ServiceNow. If an action is recommended for one of those entities, it sends the action to Turbonomic Actions.

3. Turbonomic Actions creates a Change Request (CR).

When it receives an action, Turbonomic Actions opens a new CR in the appropriate ServiceNow workflow.

4. Your enterprise reviews and approves or rejects the CR.

After approving the CR, it goes into the `Scheduled` state.

If you reject the CR, it goes into the `Cancelled` state.

NOTE:

The CR model must include a transition to the `Scheduled` state. Turbonomic Actions uses this state as a trigger to pass that action over to Turbonomic for execution.

5. Turbonomic Actions passes the CR state back to Turbonomic.

If the CR has been approved (has moved into the `Scheduled` state), Turbonomic executes the action. If you have configured this action to have a maintenance window in Turbonomic, it waits until the scheduled time to execute the action.

If the CR has been rejected (has moved into the `Canceled` state), Turbonomic removes the action from its list of pending actions.

6. Turbonomic Actions logs the CR result.

Turbonomic returns the action status back to Turbonomic Actions.

For an approved CR, Turbonomic returns the result of action execution. The result can be:

- **Succeeded** – Turbonomic executed the action successfully.
- **Failed** – Turbonomic tried to execute the action but it failed for some reason. For example, network issues could keep Turbonomic from executing the action.
- **Missed** – If the change is no longer valid, Turbonomic will not execute the action. For example, assume a change to add memory to a VM. If the application no longer needs that extra memory, Turbonomic will not execute the action even though you have approved it.

For all of these action results, Turbonomic removes the given action from its list of pending actions.

For the given CR, Turbonomic Actions closes the CR and logs the result in an ServiceNow. For a failed or a missed action, Turbonomic will not try to execute the same CR again. If the same conditions arise again, that can cause Turbonomic to generate a new instance of that action. The new action begins this process flow from the top.

7. Your enterprise reviews the action status and completes the workflow.



Installing the Turbonomic Actions Application

The Turbonomic Actions application integrates Turbonomic with ServiceNow change management. This integration brings Intelligent Workload Management via Turbonomic into orchestration workflows for ServiceNow users.

To provide the application user interface (GUI) and logic for this integration, you will load the provided Update Set into your ServiceNow account.

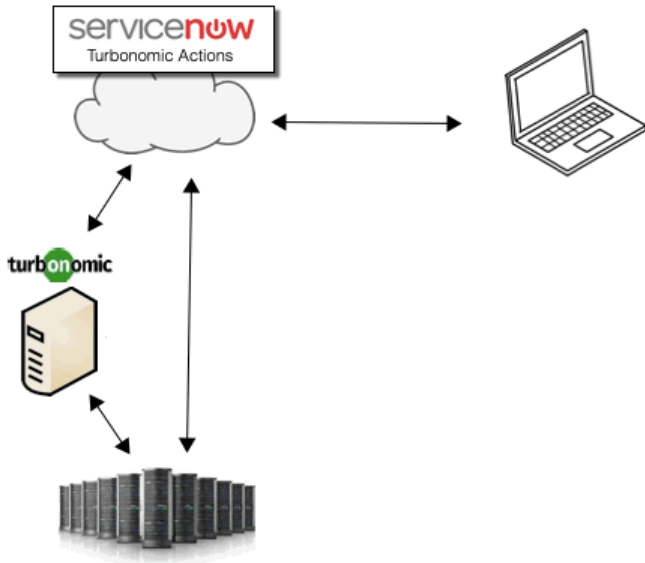
To automate the discovery and execution of changes via the Turbonomic Actions application, you must have configured:

- A valid ServiceNow account
- The Turbonomic Actions application installed in your ServiceNow account
- One or more deployed instances of Turbonomic

This instance must be configured to manage the same datacenter entities that you manage as Configuration Items (CIs) by your ServiceNow account. Also, the instance must have your ServiceNow account configured as a target, so it can communicate with that account.

One installation of Turbonomic supports only one ServiceNow target. To integrate multiple ServiceNow accounts with Turbonomic Actions, deploy a unique instance of Turbonomic for each ServiceNow target you want to support. For more information, please contact Turbonomic Technical Support.

These components interact with each other to integrate Intelligent Workload Management with your orchestration workflows.



This documentation assumes that you have a valid ServiceNow account, and that you have a deployed instance of Turbonomic. After you have installed Turbonomic Actions, you can then go to your deployed instance of Turbonomic to configure your ServiceNow account as a target. For information about configuring the target, please see the Turbonomic Target Configuration Guide.

Installing Turbonomic Actions on ServiceNow

To deliver the Turbonomic Actions application, Turbonomic provides an Update Set — a file that contains the application GUI and logic.

NOTE:

To install the Turbonomic Actions update set, your ServiceNow account must have an `admin` role. For general information about download applications from the ServiceNow Store, see [Download an application from the ServiceNow Store for the first time](#)

To install the Turbonomic Actions application, navigate to the ServiceNow Store, and got to the Certified Apps tab. From there, search for Turbonomic Actions. Navigate to the Turbonomic Actions page, and **GET** the application.

This should install the application in your ServiceNow instance. to verify that the application is installed, navigate to the Turbonomic Actions user interface. Enter `Turbonomic` in the ServiceNow Navigator search bar. This should display the Turbonomic Actions menu.

After you have installed the application, configure it for use with your deployment of the Turbonomic platform. See [Turbonomic Actions Configuration \(page 9\)](#).



Turbonomic Actions Configuration

To successfully use Turbonomic Actions, you must configure:

- Settings for the Turbonomic Actions application
- Turbonomic policies
- Turbonomic targets

These configuration tasks ensure that Turbonomic Actions interacts correctly with both ServiceNow and Turbonomic. The Turbonomic policies specify how to manage your ServiceNow configuration items in league with the Turbonomic Actions application.

You should be sure to review the [Product Specifications and Release Notes \(page 15\)](#).

Configuring Settings for Turbonomic Actions

To use Turbonomic Actions with your Change Management application, you must configure settings that guide how Turbonomic Actions creates a Change Request (CR).

To edit the settings:

1. Click *Settings* in the Turbonomic Actions menu.
This displays the Turbonomic Actions Settings view. This view has a single record that shows your current settings.
2. Click the field entry for Matching CR Type.
This opens the Settings record so you can edit its values.

←
☰
Turbonomic Action Settings

* Matching CR Type

Populate CR Assignee

Assigned CR User

Assigned CR Group

Allow Previously Rejected Actions

Use Custom Business Rule for CR Creation

You can make the following settings for Turbonomic Actions:

- Matching CR Type

The CR type to generate for Turbonomic actions. The Change Management application includes three CR types, each with different behaviors. Use this field to choose which type you want to generate when using Turbonomic Actions. Can be one of:

- Normal (Default)
- Emergency
- Standard

For more information about CR types, see your ServiceNow documentation.

NOTE:

You can edit your CRs in ServiceNow. In all cases, the CR that you use with Turbonomic Actions must include a Scheduled state. When Turbonomic Actions recognizes that the CR is in this state, it sends the action to be executed by Turbonomic.

- Populate CR Assignee

When you turn this on, you can then specify the CR users or groups to specify for each generated CR. Click the SEARCH icon to search for valid user and group names.

- Apply Previously Rejected Actions

If your enterprise has rejected a CR for a specific action and Turbonomic recommends that action again, you can choose to ignore it, or choose to consider it again. This setting has a global effect. If you turn it off, then Turbonomic Actions will not create new CRs for any actions that you subsequently reject.

- Use Custom Business Rule for CR Creation

Turn this on to use custom rules when Turbonomic Actions generates a CR. When you turn this on, Turbonomic Actions will not create CRs. Your ServiceNow administrator must deploy a custom business rule that will generate the CR.

The business rule is defined for the Turbonomic Action Approval event (`x_turbo_turbonomic_turbonomic_action_approval`, on insert).

Implement the rule to trigger for each `insert` into the approval table that Turbonomic Actions maintains. You should also implement the global `UpdateApprovalBasedOnRequestStateChanges` business rule to update the approval record when the given CR has been approved.

After you make your settings, be sure to click **Update**.

Setting Turbonomic Policies

To use Turbonomic Actions with your ServiceNow Change Management application, you must have an instance of the Turbonomic product deployed to manage the entities in your environment. In addition, Turbonomic must be configured with your ServiceNow account as a target, and it must have automation policies defined for the entities that you have configured ServiceNow to manage.

This section describes the Turbonomic policies that identify the scope of entities to manage via Turbonomic Actions, as well as how their actions will interact with ServiceNow and Turbonomic Actions. Your Turbonomic administrator should have already set up the necessary policies. However, an understanding of these policies will help you as you work with Turbonomic Actions and the CRs that it generates.

About Turbonomic Policies

As Turbonomic gathers metrics, it compares the metric values against specified constraint and capacity settings to determine whether a metric exhibits a problem, and what actions to recommend or execute to avoid a problem. Turbonomic uses Automation Policies to guide its analysis and resulting actions. These policies can specify:

- **Action Automation**
Whether to execute automatically or manually, or whether to just recommend the action.
- **Action Orchestration**
Whether to have Turbonomic execute the action, have Turbonomic direct an orchestrator to execute the action, or execute the action with Action Scripts.
- **Analysis Settings**
Settings that affect the Turbonomic analysis of the state of your environment. These include:
 - Operational Constraints such as enabling/disabling discovery of HA policies set for Hosts
 - Utilization Constraints such as memory or CPU utilization
 - Resize Increments
 - Application Priority

In addition, Turbonomic can include scoped Action Policies, which override the default settings for certain entities. With these policies you specify one or more groups of entities as the policy scope. You can also set a schedule to the policy to specify maintenance windows, or to support orchestration workflows that require approval before executing the given action.

The settings that directly affect Turbonomic Actions are the *Action Orchestration* settings. Your Turbonomic administrator will create scoped policies that affect the entities you want (the ServiceNow CIs). In addition, these policies will indicate whether to generate a CR for a given action, or whether to log the action in the Turbonomic Actions Records view.

Specifying Action Orchestration

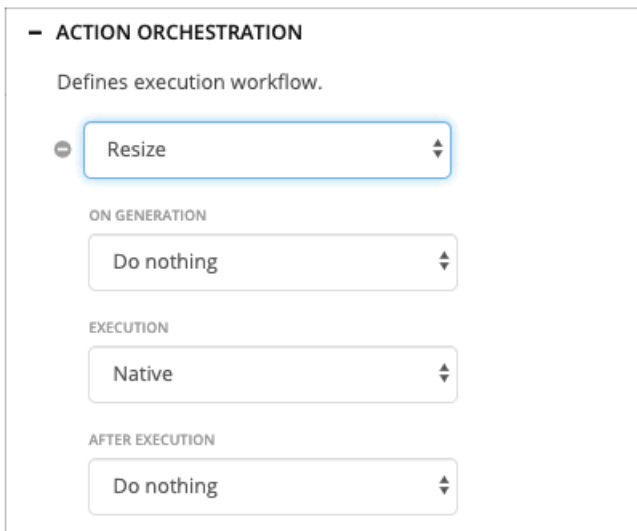
As your Turbonomic administrator creates a policy, she specifies the entity type and the scope of entities the policy affects. Then the administrator adds a given action type to the **ACTION ORCHESTRATION** section of the policy, and specifies how to execute the action, in the following steps:

1. Set the scope of the policy.

The policy scope is usually a group of entities. For example, you can create a group of all the Hyper-V VMs that you manage in ServiceNow. If you set the policy scope to that group, then the policy will affect those VMs. In this way, you can manage different sets of entities in different ways.

2. Add an Action Orchestration entry to the policy.

Expand **ACTION ORCHESTRATION** and click **ADD ACTION ORCHESTRATION**. Then select the action type you want to orchestrate.



- ACTION ORCHESTRATION
Defines execution workflow.

Resize

ON GENERATION
Do nothing

EXECUTION
Native

AFTER EXECUTION
Do nothing

The orchestration for this action is initially in the default state. **EXECUTION** is Native, while **ON GENERATION** and **AFTER EXECUTION** are both set to Do Nothing.

- Specify a process to run as Turbonomic generates the action.

Make a setting for **ON GENERATION**. Use this to specify whether Turbonomic Actions will just record the action, or whether it will generate a CR for the action.

This setting includes the following options:

Setting	Description
Do nothing (Default)	Turbonomic does nothing before action execution.
ServiceNow:Record Action	Turbonomic registers the action in the ServiceNow log, showing that the given action has been recommended.
ServiceNow:Request Approval	<p>When you specify this setting, Turbonomic passes control for this action to your ServiceNow workflow as a Change Request (CR). When the CR is approved, Turbonomic executes the action with its default action processing. If the policy includes a schedule, it executes the action at the scheduled time. Otherwise it executes the action immediately.</p> <p>Note that with this setting, Turbonomic registers the given action with your ServiceNow instance.</p>

- Specify the action execution that you want.

Make a setting for **EXECUTION**. For this action to work with your ServiceNow CR, the value must be Native. When the CR is approved, Turbonomic can then use its native processing to execute the action.

- Optionally, specify processes to run after the action execution.

Use this to specify whether Turbonomic Actions will record the action after execution.

This setting includes the following options:

Setting	Description
Do nothing (Default)	Turbonomic does nothing after action execution.
ServiceNow:Record Action	Turbonomic registers the action in the Turbonomic Actions application, showing that the given action has been executed.

Policy Schedules

You can set a schedule for an automation policy, which sets a window of time when the policy takes effect. For example, you can set up a maintenance window when you are allowed to execute actions, or you can modify the analysis settings for a given period of time.

One use case for schedule policies is to set up a maintenance window, or some other period of time when you want Turbonomic to execute your actions. For example, say your enterprise only allows Storage Move actions during the weekend for certain VMs. Assume the default action mode is Recommend. Then you can:

- Create a scoped policy for those VMs
- Set the action mode for Storage Move to Automated
- Give the policy a schedule that starts on Saturday morning, and lasts 48 hours

For an approved CR that is tied to a scheduled action, Turbonomic waits until the scheduled time to execute the action. If the action has no schedule, then Turbonomic executes it as soon as the CR is approved.

Be aware that Turbonomic recommends an action at the time that the conditions warrant it. If you have scheduled action execution for a later time, then conditions could change enough that the action is no longer valid. If this happens, and the action remains invalid for 24 hours, then Turbonomic removes it from the list of pending actions. This action will not be executed. If the action generated a CR, the corresponding Action Approval will appear with a state of `MISSED`.

NOTE:

For a CR that is marked as `MISSED`, Turbonomic Actions does not change the CR from that state. It is up to your organization to move such a CR into a different state. For example, you can implement a business rule to find all `MISSED` action approvals and mark them as appropriate.

Turbonomic policies include Scaling Constraints that work to stabilize action decisions for VMs. The resulting actions are more likely to remain valid up until their scheduled window for execution.

Setting the ServiceNow Target in Turbonomic

To use Turbonomic Actions with your Change Management application, you must have an installation of Turbonomic that manages the same entities that you monitor with ServiceNow.

To connect to your Change Management application, the Turbonomic administrator configures a ServiceNow target. This target uses a valid user account to log into your ServiceNow account, and communicate with your Turbonomic Actions application.

NOTE:

The ServiceNow user account that the target logs in through must have the `x_turbo_turbonomic.user` role assigned to it. This role assigns the privileges that the target needs as it communicates with ServiceNow.

A single installation of Turbonomic can support one ServiceNow target. If you want to run Turbonomic Actions more than one ServiceNow account, then you can set up a different installation of Turbonomic for each ServiceNow account.

Product Specifications and Release Notes

Turbonomic Actions Product Specifications

- Browser Compatibility

Turbonomic Actions operates with most commonly-used Web browsers (for example, Internet Explorer, Mozilla Firefox, Google Chrome, and Apple Safari).

Turbonomic Actions is designed for use as a desktop application. It is not designed for use on mobile devices.

- Internationalization

The Turbonomic Actions user interfaces is implemented in US English only.

Version 1.0: Initial Release

- Certified for ServiceNow versions:

- Kingston
- London
- Madrid



Using the Turbonomic Actions Application

Turbonomic Actions is an integration that brings the power of Turbonomic to your ServiceNow® Change Management application. You can use Turbonomic Actions to track the actions that Turbonomic recommends, or to create new Change Requests (CRs) in your ServiceNow instance.

Note that Turbonomic constantly analyzes your application environment. For the Configuration Items (CIs) that you specify, Turbonomic can recommend actions to:

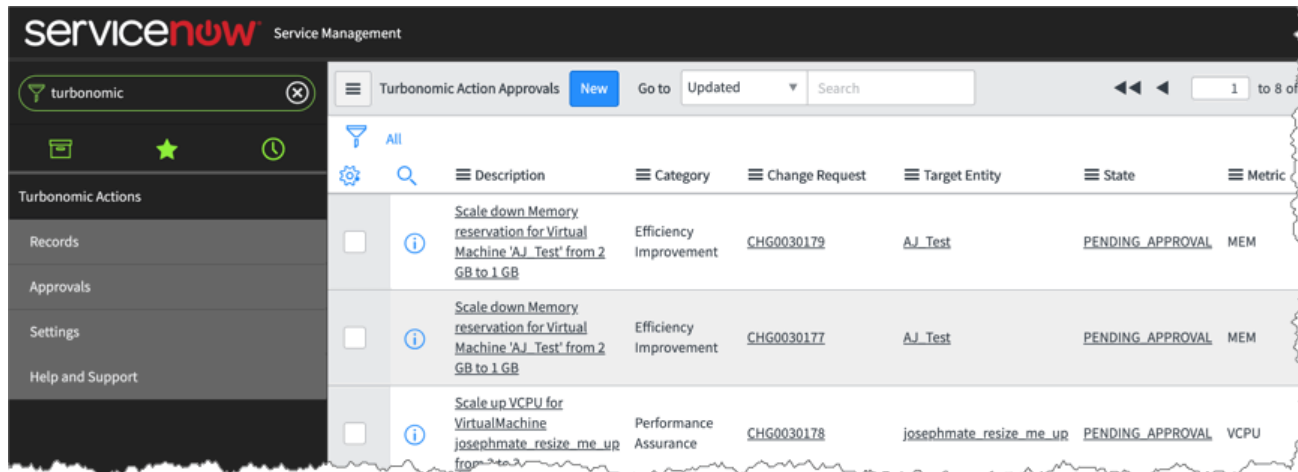
- **Assure application performance**
Prevent bottlenecks, provision physical resources, upsize VMs, and prioritize workload to ensure applications always have the resources they need.
- **Ensure efficient use of resources**
Consolidate workload, downsize VMs, prevent VM sprawl, and take advantage of pricing plans on the cloud.
- **Ensure compliance**
Keep workload placement and resource allocation compliant with your business rules.

Turbonomic Actions integrates your ServiceNow account with Turbonomic to:

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- **Open Change Requests (CRs) when a change is needed**
For a Turbonomic action that is configured to integrate with your ServiceNow account, Turbonomic Actions opens a CR in your Change Management workflow. You then process that CR through normal channels to get the proper approval. When the change is approved, Turbonomic Actions then directs Turbonomic to execute the change. Turbonomic Actions then logs the change as an Action Record in ServiceNow.

User Interface Overview

Turbonomic Actions installs as a ServiceNow *Update Set*. This update set delivers the application logic and the graphical user interface (GUI) for the application. This GUI makes it easy for users to view the history of Turbonomic actions, and to manage the CRs that Turbonomic Actions creates.



Your ServiceNow administrator should have already installed the update set. To navigate to the Turbonomic Actions GUI, enter `Turbonomic` in the ServiceNow Navigator search bar. This should display the Turbonomic Actions menu. If the menu does not appear, contact your ServiceNow administrator to make sure you have access to Turbonomic Actions.

To navigate to the different views of the Turbonomic Actions GUI, choose from the entries in the menu.

Turbonomic Actions User Documentation

This section of the documentation describes:

- Viewing Turbonomic Actions Records

When the Turbonomic product generates actions for your ServiceNow Configuration Items (CIs), it can post those actions as Turbonomic Actions Records. You can view these records to follow the history of Turbonomic analysis and actions in your environment.

- Working with Change Requests (CRs)

The Turbonomic administrator sets up which actions will generate a ServiceNow CR. You can view the list of CRs to see their status, which CIs they affect, and to move a CR to a different state (for example, approve or reject a CR).

- Administration

To use Turbonomic Actions, it must be properly installed and set up in your ServiceNow environment. Proper setup includes settings to specify the CR type to use, and settings to manage CR assignees.

NOTE:

This section does not describe installation — It assumes that you already have a correctly installed instance of Turbonomic Actions.

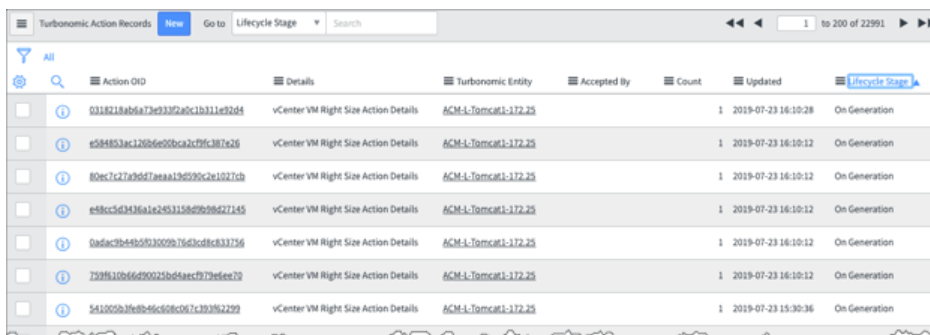
Also, this section does not describe how to configure Turbonomic actions so they will integrate with ServiceNow and Turbonomic Actions. It assumes that your Turbonomic has already performed that configuration.

We hope this documentation gives you all the information you require to successfully manage change requests with the Turbonomic Actions application. If you encounter problems, please contact your ServiceNow administrator. This administrator should have contact with Turbonomic. If necessary, the administrator can contact Turbonomic to resolve issues.

Viewing Turbonomic Actions Records

The Turbonomic product continually analyzes your environment. This holistic analysis identifies problems in your environment and the actions you can take to resolve issues and avoid problems before they occur.

Your ServiceNow Change Management application provides an approach to control the life cycle of changes that you make to specific Configuration Items (CIs) in your environment. The Turbonomic administrator configures the Turbonomic product to identify the CIs it will manage, and the specific actions it will integrate with your change management. Turbonomic Actions can log each of these actions in the Turbonomic Actions Records view.



Action ID	Details	Turbonomic Entity	Accepted By	Count	Updated	Lifecycle Stage
0318218ab6a73e3372a0c1b111e92d4	vCenter VM Right Size Action Details	ACM-1-Tomcat1-172-25		1	2019-07-23 16:10:28	On Generation
e584853ac120b6e00bca2c796c387a26	vCenter VM Right Size Action Details	ACM-1-Tomcat1-172-25		1	2019-07-23 16:10:12	On Generation
80ec7c27a9d77aaa13d590c2e1027cb	vCenter VM Right Size Action Details	ACM-1-Tomcat1-172-25		1	2019-07-23 16:10:12	On Generation
e58cc5d436a1e2453158d9b98627145	vCenter VM Right Size Action Details	ACM-1-Tomcat1-172-25		1	2019-07-23 16:10:12	On Generation
0afac9b48d50300976d3cd8d831756	vCenter VM Right Size Action Details	ACM-1-Tomcat1-172-25		1	2019-07-23 16:10:12	On Generation
729f610b6d90220bd5acc7973deec79	vCenter VM Right Size Action Details	ACM-1-Tomcat1-172-25		1	2019-07-23 16:10:12	On Generation
541000b3e8b846c608c067c39367299	vCenter VM Right Size Action Details	ACM-1-Tomcat1-172-25		1	2019-07-23 15:30:36	On Generation

Turbonomic can post actions to the records listing at two different stages:

- On Generation

Post the action as Turbonomic generates it. In Turbonomic this will be a *Pending Action*. Note that if the action becomes invalid (the conditions that caused the action have changed), then Turbonomic removes it from the Pending Actions list. However, it does not post a new record to the listing.

Turbonomic can post the same action to multiple records. If the action became invalid, and then became valid again, Turbonomic will post a new record. Also, if Turbonomic continually generates the same action, it can post multiple records.

- After Execution

If the action was configured to execute automatically, or manually through the Turbonomic process, then post the action after it has been executed.

The Turbonomic Actions Records view can list different actions for different types of CIs:

Entity Type	Supported Actions
Application	Provision, Start, Resize (Up/Down), Suspend
Application Server	Provision, Start, Resize heaps and threads (Up/Down), Suspend
Database server (On-prem)	Resize MEM, connections capacity, and transaction logs (Up/Down)
Host	Provision, Start, Suspend
Storage (On-prem)	Move, Provision, Resize, Delete (Datastore), Start, Suspend, Delete (Volume)
Storage Controller	Provision
Switch	Provision, Start, Resize, Move, Suspend
Virtual Machine	Move, Change, Reconfigure, Resize vCPU and vMem (Up/Down/Above Max/Below Min), Provision, Start, Suspend

Each action record includes the following information:

- Action OID**
 A unique identifier for this action in ServiceNow. Click the OID to open the action record.
- Details**
 A description of the action.
- Turbonomic Entity**
 A description of the entity that is discovered and managed by Turbonomic. Click the entry to open the record. From that record, you can view the matching ServiceNow CI.
- Accepted By**
 If the action was set to be `MANUAL` in the Turbonomic product, then this field shows the Turbonomic user who accepted the given action.
- Count**
 How often Turbonomic has recommended this same action.
- Updated**
 The last time that the given record was modified.

- Lifecycle Stage
Can be one of:
 - On Generation
 - After Execution

Viewing the Affected Configuration Instance(CI)

Each action record includes an entry for the affected entity in your environment. The record shows this as the *Turbonomic Entity*. The Turbonomic entity maps to a CI in your ServiceNow environment.

Turbonomic Actions currently works entities from the following technologies:

- VMware vCenter Server
- Microsoft Hyper-V
- Amazon Web Services VMs
- Microsoft Azure VMs

To view the CI details:

1. For the action record you want to inspect, click the entry for Turbonomic Entity.

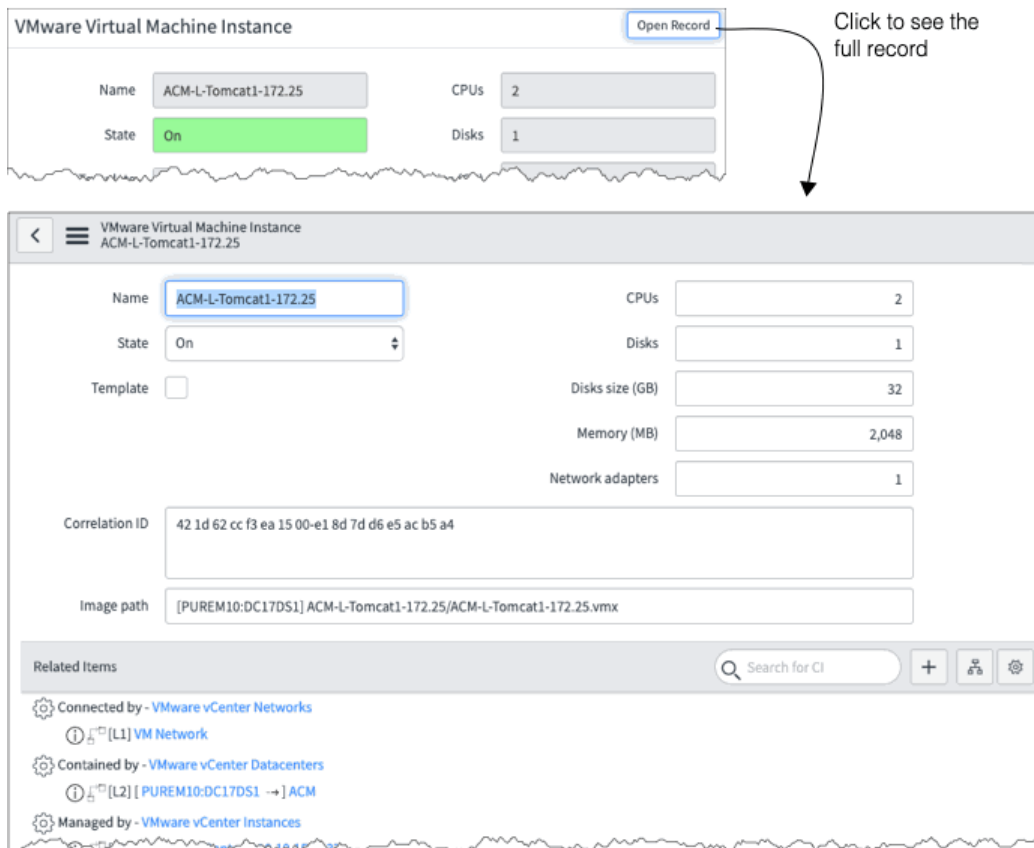
This opens a view of the record.

The screenshot shows a configuration form for a Turbonomic Entity. The form has a header with a back arrow and a hamburger menu icon, followed by the text 'Turbonomic Entity' and 'ACM-L-Tomcat1-172.25'. Below this are several input fields: 'Name' with the value 'ACM-L-Tomcat1-172.25', 'Target Name' with '10.10.150.137', 'Target IP' with '10.10.172.25', 'Type' with 'VIRTUAL_MACHINE', 'Target Type' with 'vCenter', and 'Related CI' with 'ACM-L-Tomcat1-172.25'. There are also search icons for the 'Turbonomic Instance' and 'Related CI' fields. At the bottom left are 'Update' and 'Delete' buttons. An arrow points from the text below to the information icon (a circle with an 'i') next to the 'Related CI' field.

Click to inspect the Related CI

2. Inspect the Related CI record.

Click the INFORMATION icon for the Related CI field. This opens a dialog to view the Related CI record. To see the full information, click **Open Record** in this dialog.



Working With Turbonomic Actions Change Requests

The Turbonomic product continually analyzes your environment. This holistic analysis identifies problems in your environment and the actions you can take to resolve issues and avoid problems before they occur.

Your ServiceNow Change Management application provides an approach to control the life cycle of changes that you make to specific Configuration Items (CIs) in your environment. The Turbonomic administrator configures the Turbonomic product to identify the CIs it will manage, and which specific actions it will pass to ServiceNow as Change Requests (CRs). Turbonomic Actions enters each of these actions in as an entry in the Approvals list. From there you can inspect the related entities, and navigate to the given CR.

Once you navigate to a CR, you can then use the ServiceNow Change Management application to move the CR into its different states. When you move the CR into the *Scheduled* state, then Turbonomic can execute the action – Either immediately, or at the scheduled time for that action.



The Turbonomic Actions Approvals view can list different actions for different types of CIs:

Entity Type	Supported Actions
Application	Provision, Start, Resize (Up/Down), Suspend
Application Server	Provision, Start, Resize heaps and threads (Up/Down), Suspend
Database server (On-prem)	Resize MEM, connections capacity, and transaction logs (Up/Down)
Host	Provision, Start, Suspend
Storage (On-prem)	Move, Provision, Resize, Delete (Datastore), Start, Suspend, Delete (Volume)
Storage Controller	Provision
Switch	Provision, Start, Resize, Move, Suspend
Virtual Machine	Move, Change, Reconfigure, Resize vCPU and vMem (Up/Down/Above Max/Below Min), Provision, Start, Suspend

Each approval record includes the following information:

- Action OID

A unique identifier for this action in ServiceNow. Click the OID to open the approval record. This shows extra information, including Turbonomic data such as:

- Category – The action category. Can be one of Performance, Prevention, Efficiency, or Compliance.
- Type – Can be one of Placement, Right_Size, Start, Stop, Delete, or Configuration.
- Risk – An indicator that Turbonomic uses to show the impact the action will have, where 2000 is the maximum. The higher the risk, the more benefit you will get out of executing the action.

- Description

A description of the action, including the type of action this change will execute.

- Change Request

The identifier for the associated CR. Click the entry to open the CR record.

- State

The current state for the action. This can be one of:

- PENDING_APPROVAL –

The action has been generated, and Turbonomic is waiting to execute it.

- APPROVED –

The action has been approved, and Turbonomic can execute it. If the action has a scheduled window, then execution will occur at that time.

- REJECTED –

The action has been rejected, and Turbonomic discard it.

- WAITING_FOR_EXEC –

The action has been approved, and Turbonomic is waiting for the scheduled time to execute it.

- IN_PROGRESS –

Turbonomic is executing the action.

- SUCCEEDED –

Turbonomic has executed the action and returned success.

- FAILED –

Turbonomic has executed the action and returned failure.

- MISSED –

The conditions that the action are meant to address are no longer present. Execution of this action is no longer necessary. If the conditions arise at a later time, Turbonomic will generate a new CR.

NOTE:

For a CR that is marked as MISSED, Turbonomic Actions does not change the CR from that state. It is up to your organization to move such a CR into a different state. For example, you can implement a business rule to find all MISSED action approvals and mark them as appropriate.

- Related CI

The ServiceNow CI that will be changed by this CR. Click the entry to see the CI record.

- Source Entity

For actions that are based on an existing entity, the initial entity. For example, when moving a VM to a different host, this is the host the VM moves *from*. For a provision VM action, this is the VM that you will copy to provision the new VM.

- **Count**
How often Turbonomic has recommended this same action.
- **Destination Entity**
For move actions, the entity you will move to. For example, when moving a VM to a different host, this is the host the VM moves *to*.
- **Savings**
The estimated saving or cost for the given action. When Turbonomic calculates a saving or cost for the associated action, the CR can display that value. For a required investment (for example, when provisioning a new entity or scaling up an entity), this shows a negative saving.
- **Metric**
The resource this action will change. For example, on a VM the action can change resources such as VMEM, VCPU, VStorage, or IOPS.
- **Turbonomic Entity**
A description of the entity that is discovered and managed by Turbonomic. Click the entry to open the record. From that record, you can view the matching ServiceNow CI.
- **From**
The initial amount of the resource that is indicated in the Metric field.
- **To**
The amount of the resource the given entity will have after the action executes.
- **Updated**
When the given record was last posted or changed.

Working With the Change Request

Each record in the Approvals view includes a Change Request field that shows the CR Number. To view the CR and to move it to different states, click the CR Number.

This is a standard CR, according to the CRs you have defined in your Change Management application. You can edit it or move it into different states as you would for any CR.

To accept the change and pass execution approval to Turbonomic, move the change to the `Scheduled` state.

Viewing the Affected Configuration Instance(CI)

Each action record includes an entry for the Related CI in your environment. To view the CI details, click the CI identifier.

The screenshot shows a configuration page for a VMware Virtual Machine Instance. The title bar indicates the instance name is 'ACM-L-Tomcat1-172.25'. The configuration fields are as follows:

Name	ACM-L-Tomcat1-172.25	CPUs	2
State	On	Disks	1
Template	<input type="checkbox"/>	Disks size (GB)	32
		Memory (MB)	2,048
		Network adapters	1
Correlation ID	42 1d 62 cc f3 ea 15 00-e1 8d 7d d6 e5 ac b5 a4		
Image path	[PUREM10:DC17DS1] ACM-L-Tomcat1-172.25/ACM-L-Tomcat1-172.25.vmx		

Below the configuration fields is a 'Related Items' section with a search bar and three filter icons. The related items are:

- Connected by - VMware vCenter Networks
 - [L1] VM Network
- Contained by - VMware vCenter Datacenters
 - [L2] [PUREM10:DC17DS1 ->] ACM
- Managed by - VMware vCenter Instances

This is a standard ServiceNow CI that you can inspect to see the image path, other information about the entity, and a list of related items.