

Turbonomic Release Notes

Release: 5.9

June 1, 2017

This document describes issues that are addressed in Turbonomic 5.9 – Release Date: June 1, 2017. All builds are cumulative. Applying 5.9 onto any release of Turbonomic v5.0 or later will include all previous fixes. Please see the Turbonomic documentation for earlier versions of the Release Notes:

<https://greencircle.vmturbo.com/community/products/pages/documentation>

For any questions, please contact Turbonomic Technical Support at support@turbonomic.com, or open a ticket at:

<https://greencircle.vmturbo.com/support>

End of openSUSE Support

Turbonomic ships as a pre-configured virtual machine image. For the last several years, that VM ran the openSUSE distribution of Linux. Starting with release 5.7, Turbonomic has begun a process to migrate away from openSUSE 13.2 and to base further releases on CentOS. You should prepare to migrate from openSUSE to CentOS at the nearest time that is reasonable for you.

For more information, and for a roadmap that describes how we will make this transition, see the Green Circle article, [Retirement of openSUSE Support](#).

Migration Requirements

Turbonomic supports two ways to upgrade to a new version:

- Update – Use an online or offline update to upgrade the software running on the Turbonomic server
- Migrate – Install a new Turbonomic VM that includes updated software, and also includes updates to the openSUSE OS or other components of the VM

NOTE: openSUSE ENDED ITS SPONSORED MAINTENANCE OF openSUSE 12.3 AS OF JANUARY 29, 2015, AND ENDED OFFICIAL SUPPORT ON JANUARY 17, 2016. TO ADDRESS THE END OF SUPPORT FOR openSUSE 13.2, TURBONOMIC IS BEGINNING AN OVERALL MIGRATION TO CentOS.

Turbonomic began delivering the platform on openSUSE version 13.2, starting with Turbonomic version 5.0. However, you could have updated to 5.0, 5.1, 5.2, or 5.3 without performing a migration. If that is the case, then

you must perform a migration to 5.4 before you can update to version 5.5. After that, you can then update to version 5.9.

To see the version of openSUSE that your Turbonomic platform is currently running on:

- Open a secure shell session to your Turbonomic VM, logged in as `root`
- In the shell, enter `cat /etc/os-release`

The results will show the OS version for that machine. If the OS is earlier than 13.2, then *you must perform a migration* to Turbonomic version 5.4 running on openSUSE 13.2, *and only after you have migrated to version 5.4* can you perform an update to a later version.

For information about migrating to a new version, please see the Turbonomic Installation Guide at the following location:

<https://greencircle.vmturbo.com/community/products/pages/documentation>

Configuration Requirements

For the 5.9 release of Turbonomic, you should satisfy the following configuration requirements.

Security Requirements for Apache Configurations

Turbonomic versions 5.5.2 and earlier shipped with the default Apache configuration – this configuration is no longer considered secure. Versions 5.5.3 - 5.9 ship with an Apache configuration that is considered secure in most environments. Updating to these versions updates the Apache configuration as well. If you do not want to update, contact Turbonomic Technical Support for the correct Apache configuration.

Note that after updating the Apache configuration (either by updating Turbonomic, or by editing the Apache configuration), you must restart Apache. We suggest that you reboot the Turbonomic VM.

In addition, you should be sure to maintain a secure OS platform. Starting with Turbonomic version 5.5 on openSUSE, you must run openSUSE 13.2 or later. If you are running an earlier version of openSUSE, please contact Turbonomic Technical Support.

If you are updating Turbonomic on an existing openSUSE platform, you should be sure to update your OS components. Systems with internet connections can use the `zypper update` command. If you are migrating to a new Turbonomic OVA, that OVA includes updated OS components. Note that you should also consider migrating to the CentOS delivery of Turbonomic as soon as possible. Turbonomic is one a roadmap to retire support of openSUSE as its platform OS. For more information, see the Green Circle article, [Retirement of openSUSE Support](#).

For web browsers to communicate with Apache, this configuration requires TLS versions 1.1 or later. To use versions of Microsoft Internet Explorer 9 and 10, you must enable TLS 1.1 or later (in **Internet Options > Advanced**). For more information, see the following Green Circle article:

[The DROWN Attack: Configuring Your Operations Manager's Web Security.](#)

Updating the Tomcat Server

There are circumstances when you might choose to upgrade the Tomcat server on Turbonomic to a later version. In this case you must copy a local configuration file to the tomcat installation.

After you update the Tomcat server:

- Copy the file `/usr/libexec/tomcat/server.local` to `/usr/libexec/tomcat/server`
- To ensure that this server configuration file is executable, perform the following command:

```
chmod 755 /usr/libexec/tomcat/server
```

Storage Requirements for the Turbonomic Server

Turbonomic now states 150GB or greater as a requirement for disk storage. For Turbonomic servers hosted on VMware hypervisors, you should provide 150GB *plus* swap space to match the RAM allocation.

Transport Layer Security Requirements

Starting with version 5.4, by default Turbonomic requires Transport Layer Security (TLS) version 1.2 to establish secure communications with targets. Most targets should have TLSv1.2 enabled. However, some targets might not have TLS enabled, or they might have enabled an earlier version. In that case, you will see handshake errors when Turbonomic tries to connect with the target service. When you go to the Target Configuration view, you will see a Validation Failed status for such targets.

In particular, we have found that NetApp filers often have TLS disabled by default, and that the latest version they support is TLSv1. If your NetApp target suddenly fails to validate after installing Turbonomic 5.4 or later, this is probably the cause.

If target validation fails because of TLS support, you might see validation errors with the following strings:

- `No appropriate protocol`
To correct this error, ensure that you have enabled the latest version of TLS that your target technology supports. If this does not resolve the issue, please contact Technical Support.
- `Certificates does not conform to algorithm constraints`
To correct this error, refer to the documentation for your target technology (for example, refer to NetApp documentation) for instructions to generate a certification key with a length of 1024 or greater on your target server. If this does not resolve the issue, please contact Turbonomic Technical Support.

Enabling Reports on Custom SELinux Platforms

When you install the provided Turbonomic OVA, the SELinux platform is configured to enable the generation and delivery of Turbonomic reports. However, if you install the Turbonomic software on a custom SELinux platform, you must perform configuration changes to enable reports.

To configure reporting, execute the following command with root privileges:

```
setsebool -P httpd_can_network_connect on
```

If you need additional assistance, contact Turbonomic Technical Support.

Enabling IOPS and Network Monitoring for OpenStack Mitaka

The Turbonomic Target Configuration Guide gives instructions to connect to OpenStack targets. However, if you are running OpenStack Mitaka, you must perform additional configuration on the Mitaka platform to enable IOPS and Network data collection from Physical Machines. For those instructions, please see the Green Circle article, <https://greencircle.vmturbo.com/docs/DOC-4685>.

SMI-S Provider Versions for EMC VNX and EMC VMAX Storage Solutions

To connect to EMC VNX and VMAX disk arrays, Turbonomic uses EMC SMI-S providers that have the given disk arrays added to them. You should know that VNX and VMAX support different versions of SMI-S Providers:

- VNX
For VNX and VNX2 arrays, use SMI-S version 4.6.2, based on Solutions Enabler 7.6.2. We have verified Turbonomic control of VNX block storage using SMI-S version 4.6.2 as a target.
- VMAX
For VMAX arrays, use SMI-S version 8.1, which is included in Solutions Enabler 8.1 – We have verified Turbonomic control of VMAX storage arrays using SMI-S version 8.1 as a target.

Update Recommendations

You can apply this update to any GA version of Turbonomic from version 5.0 or later, if it is running on openSUSE 13.2 – Otherwise you should perform a migration. To upgrade older versions of Turbonomic, contact Turbonomic Technical Support to confirm the update path.

Note that if your Turbonomic is running on openSUSE 13.2, you should consider migrating to the CentOS delivery of Turbonomic as soon as possible. Turbonomic is on a roadmap to retire support of openSUSE as its platform OS. For more information, see the Green Circle article, [Retirement of openSUSE Support](#).

Update Links

If your server is able to connect to the Internet, you can apply the update through the online process by going to Admin > Maintenance > Software updates > Update. If you require an offline update, please see the Green Circle article:

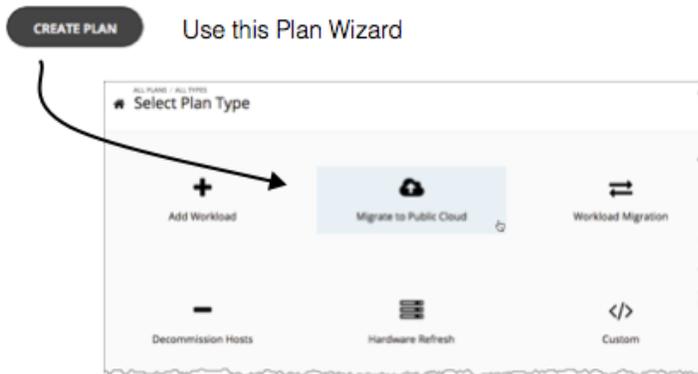
[How To Perform an Operations Manager "Offline Update" - Latest Links Included](#)

Related Green Circle Articles

- Offline and Online Update Instructions:
<https://greencircle.vmturbo.com/docs/DOC-1649>
- Release Notes and Product Documentation:
<https://greencircle.vmturbo.com/community/products/pages/documentation>

Known Issues

- For all plans except Migrate to Public Cloud, the scope that you set to your Turbonomic session determines the scope of the plan. Even if you change the plan scope via **Plan Scope** in the plan workflow, the plan will use the scope of your current Turbonomic view.
- To plan migration from on-prem to the cloud, be sure to use the Migrate to Public Cloud plan wizard. The Plan user interface includes a workflow to specify cloud migration in a custom plan, but this workflow is not fully supported.



- **Customer Issue: 94559**
If you ignore hyperthreading for a scope that is less than a datacenter and then restart tomcat for the Turbonomic application, then Turbonomic does not calculate the CPU capacity correctly for the affected scope of hosts.
If this problem occurs, execute a full rediscovery to show correct CPU capacity.
- **Customer Issue: 25858**
Turbonomic experiences an error when discovering Dell Compellent targets. As a result, Hyper-V VMs that use Compellent storage disappear from the Turbonomic topology.
- Customers who use HPE OneView targets must manually reconfigure their OneView targets after upgrading to Turbonomic 5.8. Also, these users should upgrade to 5.8, and then migrate to the 5.8 version of the CentOS deliverable.

For information about migrating to a new VM, see the Turbonomic Installation Guide. For information about the CentOS deliverable for Turbonomic, see <https://greencircle.vmturbo.com/docs/DOC-4276-retirement-of-opensuse-support>

To keep your HPE OneView targets after upgrading, you should follow these steps:

- Before upgrading to 5.8, be sure to record the address and credentials for each OneView target

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- Update your Turbonomic instance to version 5.8
 - Reconfigure your OneView targets, and run discovery
 - If your Turbonomic is running on an openSUSE VM, migrate to a CentOS VM
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- In OpenStack environments, it's possible to place a VM belonging to a specific cluster (a VM flavor that is set via extra specifications) onto a host that is not a member of that cluster. Turbonomic cannot identify this configuration error, and will not recommend a move to place the VM onto an appropriate host. You can implement placement policies to ensure that VMs always get placed on the correct hosts. This can work even if there is no host cluster to match the VM flavor. However, in that case the user interface will not show these VMs as members of a PM cluster.
 - For Hyper-V and VMM targets, secure connections use port 5986 and unsecure connections use 5985. As you enable or disable a secure connection, the user interface does not automatically set the correct port number. You must be sure to specify the correct port for the type of connection you want.
 - For VMs running on Hyper-V, if you set a VCPU limit (limit VCPU to less than 100%), then the VCPU utilization data that VM returns to Turbonomic is not correct. As a result, Turbonomic will not recommend that you increase the VCPU limit.
 - When you reserve resources for VMs that you will deploy in the future, Turbonomic initially calculates these reserved resources as CPU Provisioned, Memory Provisioned, and Storage Provisioned. However, these resources ultimately revert back to values that do not include the reserved VMs.
 - For IBM PowerVM targets, Turbonomic creates a group named AIX-vioses-auto to contain discovered VMs. Under some circumstances; the PowerVM configuration does not result in the information Turbonomic needs to create this group. To fix this issue, see the following IBM workaround: <http://www-01.ibm.com/support/docview.wss?uid=isg3T1024482>.
 - In the new user interface, for virtual machines with more than one Virtual Storage resource, the Turbonomic user interface only shows a single storage resource, as the sum of all the datastores for that VM.
 - For vCenter 6.5 targets, Turbonomic does not discover groups of VMs by their tag name/value pairs.
 - There is a rare case where Turbonomic can lose the cluster relationship for VMs running on a host. Assume you move a host out of a cluster, and directly into the datacenter (not into a cluster). Next, you create a new cluster and then move the host into that cluster. In this case, the VMs on that host will not belong to any PM cluster. This can also affect Provider Virtual Datacenters that belong to the new cluster. To avoid this problem, create the cluster first, and move the directly into it. If this problem occurs, rediscover your environment to establish the correct cluster relationships.
 - In VMware environments, Turbonomic discovers Docker containers, but it does not show the "Consumes" relationship for the container consuming from the hosting VM, and it does not show the containers in the "Hosts" relationship for the hosting VM.
 - After you update the Turbonomic product, existing Merge Placement Policies can fail to take effect. If this occurs, select the Merge Placement Policy in the user interface, disable the policy and click **Apply**, then enable the policy and click **Apply**.

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- Under some circumstances when using the Deploy View, the user interface can fail to respond. After you request a placement, if the placement recommendation does not appear within one to two minutes, you must reload the Turbonomic web page to reset the user interface.
- When using the Turbonomic REST API, be aware that requests include the password for your Turbonomic user account. You should always use the secure HTTPS protocol to ensure these requests do not include the password in clear text.
- You can create a merge segment to support cross-vCenter move actions. You should always use Host Cluster merge segments for this case, instead of Datacenter merge segments. Note that Datacenter merge segments are to support for moves between public and private clouds.
- Earlier versions of Turbonomic on the centOS platform included an Apache configuration that enabled directory browsing. Version 5.9 fixes this issue.
If you migrate to a new centOS VM, the fix will take effect. However, if you update an older version to a version containing this fix, you must manually restart the httpd service in order for the fix to take effect.
- In the New User Interface, when you expand an entry for a host in the cloud, the user interface does not show any values for host or datacenter resources. This is expected behavior because cloud services handle these entities differently than on-prem environments.
- Azure targets do not recognize proxy hosts. If your Turbonomic instance requires a proxy to communicate externally to AWS and Azure, you can define the proxy host and port in Target Configuration. However, Azure targets do not recognize the proxy; this issue has been reported to Microsoft.
- When you edit the configuration for an Azure target you must also re-enter the values for Tenant Name and Client Secret Key.
- The information Turbonomic gets from Azure and AWS cloud providers for VM costs does not include license costs for a VM's OS. For that reason, the costs you see in Turbonomic do not match your actual costs for Windows VMs.
- With version 5.9, Turbonomic introduces support for the Azure Resource Manager, and no longer requires a certificate to be generated. In addition, Azure Classic VMs are no longer supported.

Resolved Issues

This release includes resolutions for the following issues:

General

- **Customer Issue: 94777**

In UCS environments under certain circumstances threads would remain open, causing a timeout and mediation deadlock.

- **Customer Issue: 95294**

When using Active Directory credentials to log into an aggregator instance of Turbonomic, child instances would not be available from the policy or supply chain views.

- **Customer Issue: 95704**

Catalina log file would sometimes fail to rotate upon reaching 1GB in size.

- **Customer Issue: 15349**

In vCenter environments, when using the same license for multiple vCenter installations, the Monthly Overview report could return negative numbers of sockets available.

- **Customer Issue: 25646**

For Microsoft Exchange Server targets, when you use Scope to specify a cluster or group of VMs that host these targets, Turbonomic fails to discover target information.

Cloud

- **Customer Issue: 21331, 25984**

In an environment with both cloud and non-cloud targets, resize actions for on-prem workload would sometimes be calculated incorrectly.

- **Customer Issue: 26112**

Due to quote normalization from cloud providers, the providers can appear to be more desirable than they really are. In that case Turbonomic could recommend moving an incorrect number of workloads to those providers.

- **Customer Issue: 26012**

In vCloud Director or Virtual Machine Manager environments, reported values related to CPU and Mem could appear inflated on the virtual datacenters.

- In Azure environments, VMs could display as unattached to any hosts.
- In large Azure environments, discovery could take an excessive amount of time.
- Under certain circumstances involving high utilization, OpenStack VMs would not appropriately resize to a template.
- When adding an Azure target that does not enable memory metrics for VMs, the Turbonomic logs erroneously repeated the statement, `Error when generating lookup keys...`
- Under certain conditions for environments with multiple AWS targets, discovery can fail when Turbonomic discovers the same AWS entity through different AWS targets.
- When AWS VMs were located on regions other than the default, discovery fails to collect associated vCPU values.

User Interface

- **Customer Issue: 10861**
Firewall Requirements have been added to the Target Configuration Guide.
- **Customer Issue: 95176**
In the new user interface, under certain circumstances the user interface failed to show existing Workload Placement policies or groups.
- **Customer Issue: 95016**
Resize Info panels in custom dashboards would not allow scoping to custom groups.
- **Customer Issue: 95125**
The help text that displayed in the user interface for adding Tomcat and JVM targets was misleading and incorrect.
- The Turbonomic Notifications (at the bottom-right of the application window) could incorrectly show a Health Check status with the following message:
<Turbonomic_Database_Table> has not been updated in the last latest
For example: vmtdb.pm_stats_latest has not been updated in the last latest
- Turbonomic 5.8 introduced a new target to discover applications by process signature over WMI or SNMP. For WMI applications, it is common that the credentials must include a domain in the username. However, the user interface does not include a separate field for Domain. This release corrects that issue.
- In certain target validation scenarios, it was possible for a non-admin user to see the target confirmation/validation dialog.
- In the new user interface, when scrolling through the list of templates after running a plan, the infinite scroll feature would not correctly indicate reaching the end of the template list.
- In the New UI for plans, you can filter a list of entities and then choose "Select All". This should select all the items that display in the filtered list. However, internally this action selected all the items, excluding any filtering.
- The New UI includes a wizard to set up Workload Migration plans. The first step is to select the workload to migrate, and the second step is to select PM groups that you want to migrate to. However, the user interface displayed a list of VMs for the second step.
- In the New UI, Network and IO capacities will display in Mb/s or Gb/s.

Hypervisor

- **Customer Issue: 94718**
In vCenter environments, it's possible to manage the same storage in two different vCenter servers. In that case, if you remove a storage entity from one such target, then Turbonomic could incorrectly remove the entity completely from the Turbonomic inventory.

- **Customer Issue: 26182**

For Hyper-V environments, if a VM has two IP addresses Turbonomic can fail to discover an application target that is hosted on that VM.

- **Customer Issue: 25687**

In Hyper-V environments, deploying a VM copy to another host through the Hyper-V management software can result in discovery error messages that overrun the log files.

- **OM-15868**

For KVM targets, network utilization was shown as zero for both used and peak values.

- For very large Hyper-V environments, it's possible that discovery seems sluggish. The Hyper-V probe includes settings that you can make to adjust values such as the size of the thread pool, the timeout interval, etc. If you experience problems related to discovery performance, contact Technical Support for help with making these adjustments.
- To discover applications over WMI or SNMP, for vCenter targets you had to use the deprecated workflow (via the Policies user interface), and for Hyper-V targets you had to use the new workflow (via the Targets user interface).
- In Hyper-V and VMM environments, if discovery encounters an error when discovering through one host, then Turbonomic halts all further discovery. The discovery process should log the initial error and continue on to other hosts."

Installation

- When you deploy the 5.6.4.4 OVA onto an ESX 5.0 host, the process displays a pop-up mentioning that the Guest OS is not supported and will default to "Other (32-bit)". This should be changed post-deploy to be "Other (64-bit)" (though there are no problems caused by this).
- On Red Hat and CentOS systems, setting an HTTP proxy appeared to succeed, but the proxy was not actually used for connections.
- For deployments of Turbonomic on RedHat platforms, earlier versions required modifications to the file structure to enable connections to mariaDB.

Plan

- **Customer Issue: 94994**

Under certain circumstances, plans can fail to provision Nutanix storage."

- **Customer Issue: 95286**

In some plan configurations; two consecutive runs were required to show Provision Host actions.

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- When running a plan in an AWS environment, the plan could erroneously recommend suspending an Availability Zone (a host machine in AWS). Turbonomic does not control startup and suspension of Availability Zones, and plans should not make such a recommendation.
- When plans of different scopes were run in the New UI, the user interface would overwrite the smaller-scoped plan with the results of the larger-scoped plan.
- When running certain types of plans, "cost savings" and "estimated cost of plan action" data were not shown.

Storage

- **Customer Issue: 94596**
Under some circumstances, discovery fails to add NetApp disk arrays to the Turbonomic inventory.
- **Customer Issue: 94625**
Under some circumstances for NetApp targets running in 7-mode, discovery fails to create the associated Storage Controller entity in the Turbonomic inventory.
- **Customer Issue: 26042**
Under some conditions, a Nutanix target returns negative placeholder values for some metrics. In that case Turbonomic does not treat them as zero values, which results in incorrect values in the user interface and in reports.
- **Customer Issue: 95674**
Turbonomic erroneously added Powered-off Nutanix VMs to its inventory.
- **Customer Issue: 94823**
When Qtree-enabled NetApp volumes were present in standalone-mode, stitching would fail.
- **Customer Issue: 26042**
Under some circumstances, Turbonomic fails to get network utilization statistics for Nutanix targets.
- **Customer Issue: 25920**
For VNX targets, there are circumstances where Turbonomic incorrectly shows near-zero values for IOPS and latency on the disk array.
- For XTremIO targets, Turbonomic assumes a default IOPS capacity of 15,000,000. The capacity should be 150,000.