



Lenovo ThinkAgile CP Metering Manager User's Guide



Models: CP 4000, CP 6000

Note

Before using this information and the product it supports, be sure to read and understand the safety information and the safety instructions, which are available at the following address:

http://thinksystem.lenovofiles.com/help/topic/safety_documentation/pdf_files.html

In addition, be sure that you are familiar with the terms and conditions of the Lenovo warranty for your solution, which can be found at the following address:

<http://datacentersupport.lenovo.com/warrantylookup>

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Introduction to Metering Manager

The ThinkAgile CP Metering Manager provides an easy way for private cloud operators to keep track of how resources are being consumed by different organizations, as well as track users for planning, analytics, and billing purposes. It is ideal for integration with internal and external charge-back systems.

A free, stand-alone application that you can download from the Lenovo Cloud Marketplace, the Metering Manager enables you to generate reports to monitor and track cloud resource consumption at the application and virtual datacenter levels. You can easily export usage data for use by your billing applications.

The screenshot shows the 'Report' configuration page in the ThinkAgile CP Metering Manager. The page has a dark header with the logo and navigation links. Below the header, there are several form fields for configuring a report. The 'Name' field is set to 'DemoReport'. The 'Scheduled Interval' is set to 'Manual'. The 'Custom start date (UTC)' is 'May 1, 2020, 7:35 a.m.' and the 'Custom end date (UTC)' is 'May 7, 2020, 7:35 a.m.'. The 'Report type' is 'Summary' and the 'Output type' is 'Local Database Only'. Below the form fields is a table titled 'METERS' with the following data:

NAME	METRIC	MEASURE	RATE	RATE INTERVAL
DemoReport - CPU	CPU	VCPU	1.0	Hour
DemoReport - RAM	RAM	Memory (GiB)	1.0	Hour

Figure 1. Sample settings for running a report on Storage Bandwidth consumption

Set up the Metering Manager

Follow these steps to set up the ThinkAgile CP Metering Manager.

Step 1. Log on to your ThinkAgile CP Cloud Controller Management Portal account.

Step 2. Navigate to the Lenovo Cloud Marketplace  and select the **Metering Manager – Lenovo Template**.

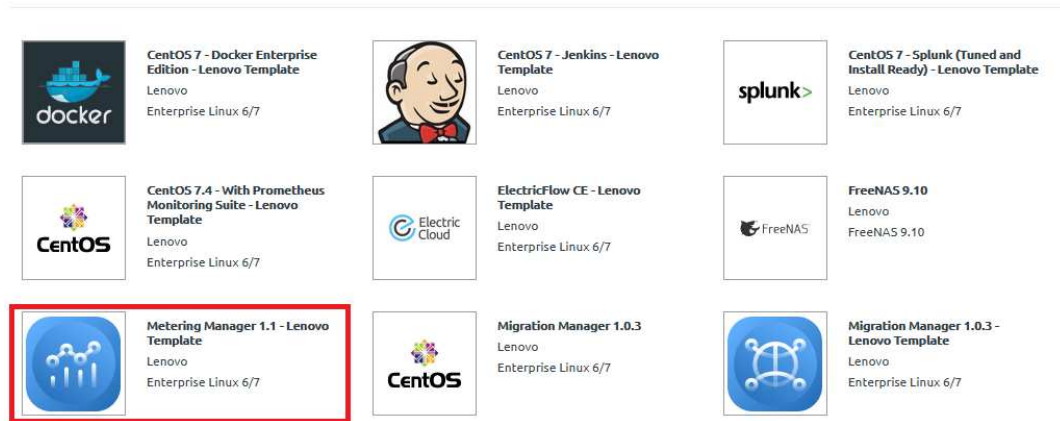


Figure 2. Metering Manager in the Lenovo Cloud Marketplace

A dialog box opens. Click on the **Download Template** button to continue the process.

Step 3. Configure the template with the following parameters:

- **Save to** — the target VDC (in this example: ACME Labs)

Note: If you do not select a VDC, the template is saved under **Applications → Organization Templates**.

- **Template Name** — a custom name for the Metering Manager template
- **Description** — a custom description for the Metering Manager template
- **Provisioning** — allocate CPU cores and memory

Download Template

Save To: ACME Labs (VDC Templates) ▼

Template Properties

Template Name

Metering Manager

Description

Metering Manager 1.1. CentOS 7.6 (64-bit) template with Metering Manager.

Provisioning

CPU: 2 cores | Memory: 8 GiB

Application Disk and Boot Order

The template's application disks and boot order are listed below.

BOOT ORDER

1	Disk 0	100 GiB
2	Network (vNIC0)	—

Cancel | Save Application Template

Figure 3. Download Template Options

- Step 4. Click **Save Application Template** to start downloading the Metering Manager template.
- Step 5. Navigate to **Applications → Organization Templates** or to **VDC Templates** for the VDC where you downloaded and saved the template.
- Step 6. Next to ThinkAgile CP Metering Manager, click **New Instance**.

Metering Manager

Metering Manager 1.1. CentOS 7.6 (64-bit) template with Metering Manager.

3.5 GiB | Created by Lenovo | Last updated on May 11, 2020

New Instance ...

Figure 4. Create a New Instance of the Metering Manager

Step 7. Configure the following parameters for the template instance:

- **Virtual Datacenter**

New instance from Template

Properties

Instance Name Metering Manager

Description (Optional) Metering Manager 1.1, CentOS 7.6 (64-bit) template with Metering Manager.

Source Template Linux Metering Manager (created by Lenovo)
Templates created by ThinkAgile CP may come with default passwords (see template description). If so, please change this password as soon as the instance is created.

Template Type VDC Template

Virtual Datacenter

Select a virtual datacenter for the application instance, then complete the resource profile for networking, storage, and compute.

Virtual Datacenter ACME Labs ▾

Application Group None ▾

Number of Instances 1 ▾

- **Storage Pool**
- **Compute Migration Zone**
- **Network Settings:**
 - vNIC
 - **Networking Mode**
 - **Network**

Storage

Storage Pool: pool1 ▾

Virtual Disks (vDisks)

Name	Size	IOPS Limit	Bandwidth Limit
Disk 0	100 GiB	—	—

Compute

Provisioning: CPU 2 cores Memory 8 GiB

Migration Zone: zone1 ▾

[Compute Constraints](#)

Network

Configure at least one virtual network interface controller (vNIC) to specify the instance's network settings. [Add vNIC](#)

vNIC	Networking Mode	Network	Firewall Profile	Firewall Override	Mac Address
vNIC 0	VNET ▾	VNET_Default ▾	NONE	None ▾	Automatic ▾

Boot Order: Disk 0 > Network (vNIC 0) [✎](#)

Step 8. Click on **Create Instance** to launch a new Metering Manager instance. An IP address is assigned to the application.

Instance Settings

Instance mode can be changed after instance creation.

Instance Mode: **Enhanced Mode**
 Virtio drivers are installed in the template.

Guest Tools: **Guest tools are pre-installed in the template.**
[Learn more about instance modes](#)

Timezone Configuration: Default* Custom
 * The timezone is set to the timezone of the node on which the instance is started

Automatic Recovery: Enable Automatic Recovery
 If node fails, restart instance elsewhere when resources are available

VT-x flag: Enable VT-x flag
 This flag can be used to enable nested virtualization of KVM hypervisors in the ThinkAgile CP environment. No other nested hypervisors are supported.

Instance Startup: Start instance upon creation

Log in to Metering Manager

Follow these steps to log in to the ThinkAgile CP Metering Manager.

Step 1. Once the Metering Manager application instance has been installed and is running, navigate to **Applications → All Instances** or to **VDC Instances** for your virtual datacenter. Search for the IP address of your Metering Manager application.

Step 2. Copy the IP address assigned to your Metering Manager Instance. Open a new web browser window or tab and paste the copied IP address. This opens a connection to the Metering Manager Instance.

Step 3. If you are prompted to login, enter the following username and password, and then click **Log in**.

The default credentials are:

- Username: admin
- Password: ThinkAgileCP

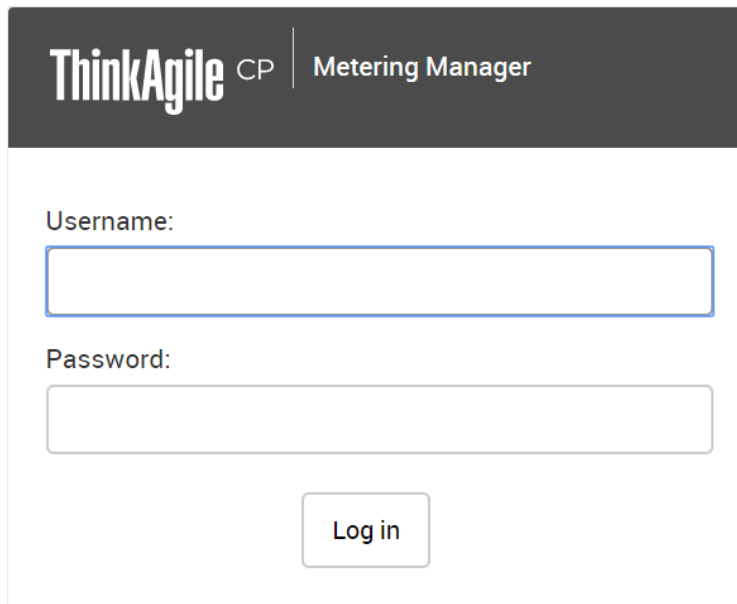


Figure 5. Log in to Metering Manager

Add a Developer Token

Before you can begin using the Metering Manager application, you need to add a ThinkAgile CP developer API token so that the application can communicate with ThinkAgile CP. In the ThinkAgile CP Cloud Controller management portal, you can obtain an API token under Developer Options.

For more information, see the topic, https://thinkagile.lenovofiles.com/help/topic/thinkagile_cp/manage-developer-options.html.

Step 1. When you log in for the first time, click **Settings** in the top navigation menu.



Figure 6. Settings in the Metering Manager menu

The Change API Configuration page opens.

Figure 7. Change API Configuration page

Step 2. On the Change API Configuration page, enter the following information:

- **Portal Host** - Your ThinkAgile CP Cloud Controller management portal host address.
(For most customers, this address will be <https://manage.cp.lenovo.com>)
- **Port** - The port number on which to communicate.
- **API Token** - The API token from ThinkAgile CP Cloud Controller, which you can easily copy from ThinkAgile CP and paste in this API Token field.

Step 3. Click **Save**.

Step 4. Go to the **Dashboard**, and click **Reload Dropdowns**.

Step 5. If you need to change the API configuration information at any time, click the **Settings** menu, make your changes, and then click **Save**.

View the dashboard

The Dashboard shows a list of current reports in the Metering Manager. Follow these steps to view the Metering Manager Dashboard.

Step 1. Click **Dashboard** in the top navigation menu.



Figure 8. Click Dashboard

The Dashboard shows a list of all reports currently available.

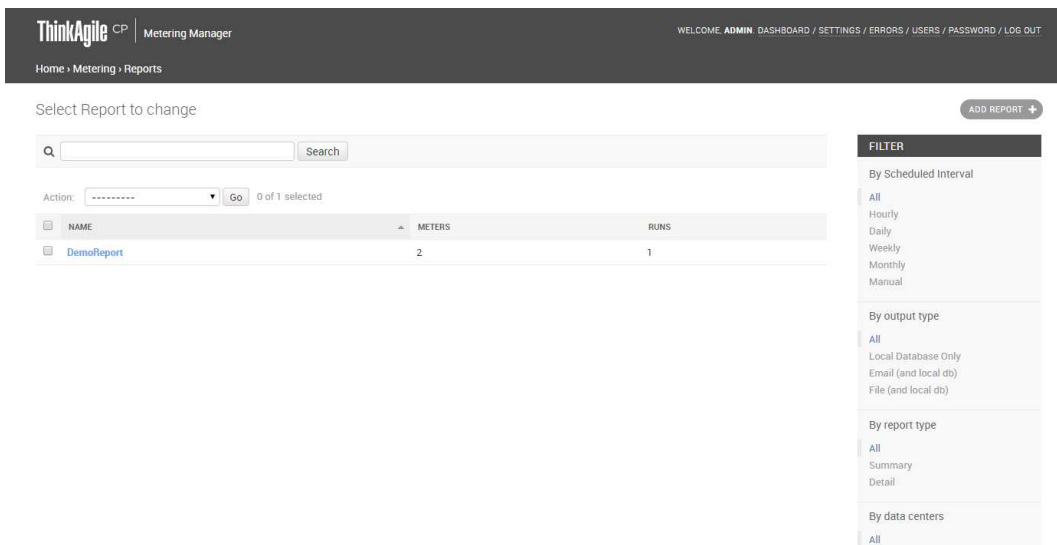


Figure 9. Metering Manager Dashboard

Step 2. In the Search field, you can enter text and click **Search** to search the list of reports.

Step 3. Under Filter, you can filter the list of reports by selecting one of the following filters:

- **Scheduled time interval** – All, Hourly, Daily, Weekly, Monthly, or Manual (if you configured a manual time interval)
- **Output type** – Select All, local database or email
- **Report type** – Select All, Summary or Detail
- **Data Center** – Select a specific Virtual Data Center to view reports for applications in that data center

Step 4. Select a report in the list to view and change report details.

Manage reports

You can easily create, view, manage metering reports in the ThinkAgile CP Metering Manager

Refer to the following topics:

- [“Create a report” on page 8](#)
- [“View a report” on page 12](#)
- [“Modify a report” on page 13](#)
- [“Delete reports” on page 15](#)

Create a report

When you create a report, you can add and define multiple meters. You define a meter by selecting the metric on which the meter is based, the measure for that metric, and the rate and rate interval that you want to set for the meter in the report. Once the report runs, you can download the resulting report, which is in Microsoft Excel format.

To create a report, do one of the following:

Step 1. From the Dashboard, click **Add Report**.

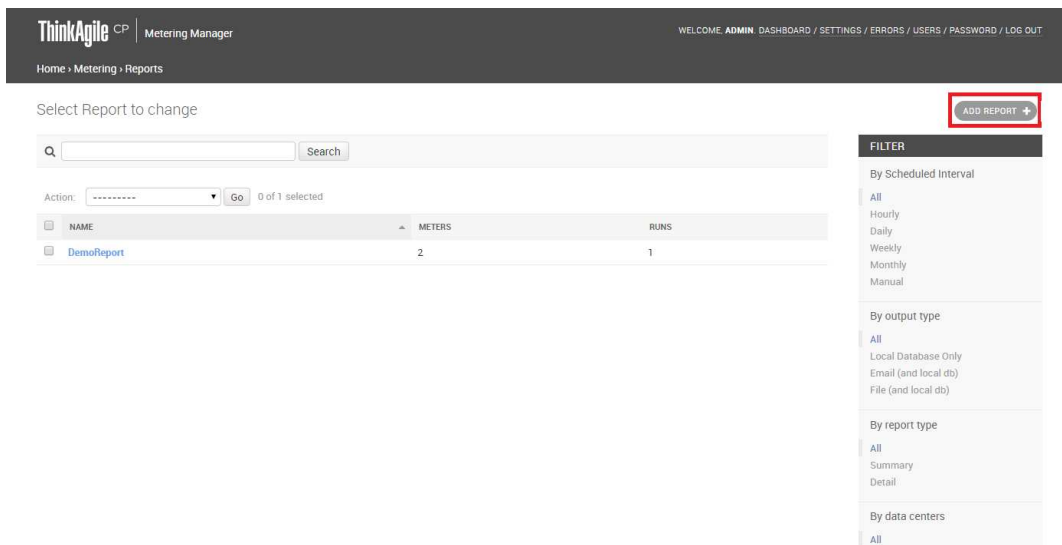


Figure 10. Add Report from Dashboard

Step 2. Or, if you are viewing a report already, click **Create** in the top navigation menu.



Figure 11. Create

The Report page opens.

ThinkAgile CP Metering Manager WELCOME, ADMIN / DASHBOARD / CREATE / SETTINGS / ERRORS / USERS / PASSWORD / LOG OUT

Home » Metering » Reports » Add Report

Report

Name:
Name for this report

Scheduled Interval:
How often should this report run

Report type:

Output type:
What should the report do with the output

METERS					
NAME	METRIC	MEASURE	RATE	RATE INTERVAL	DELETE?
+ Add another Meter					

RUN THIS REPORT ON (AND)

Applications:
Hold down "Control", or "Command" on a Mac, to select more than one.

Data centers:
Hold down "Control", or "Command" on a Mac, to select more than one.

REPORT RUNS			
RUN DATE	STATE	RESULT MESSAGE	RUN ACTIONS
0 - 0 / 0 Show all			

Figure 12. Create report page

Step 3. Enter a name for the report.

Step 4. For Scheduled Interval, select one of the following scheduled time intervals for when you want the report to run.

- **Hourly** – This report captures data from the start of the previous hour to the start of the most recent hour. For example, if the report runs at any time between 10:00 a.m. and 10:59 a.m. inclusive, the results will show data from 9:00 a.m. to 10:00 a.m.
- **Daily** – Select the hour of the day to run the report. This report captures data for the previous day regardless of when you run the report.
- **Weekly** – Select the day of the week and the time of day to run the report. Captures data for the previous week regardless of the day you run the report.
- **Monthly** – Select the day of the month and the hour of the day to run the report. This report captures data for the previous month regardless of the day you run the report.
- **Manual** – Select a custom start date and time and a custom end date and time. This report captures data for the custom defined interval.

Scheduled Interval: ▼
How often should this report run ⓘ

Custom start date (UTC):
 Date: Today ⓘ
 Time: Now ⓘ ⓘ
Note: You are 4 hours behind server time.

Custom end date (UTC):
 Date: Today ⓘ
 Time: Now ⓘ ⓘ
Note: You are 4 hours behind server time.

Figure 13. Define a custom interval for the report

Step 5. For Report Type, select one of the following:

- **Summary** – Provides a summary total of the report meters.
- **Detail** – Provides all details per timestamp of the specified time interval and report meters.

Step 6. For Output Type, select one of the following:

- **Local Database Only** – The report runs are stored on the local database for the Metering Manager application.
- **Email and Local Database** – In addition to being stored in the local database, you will be prompted to enter an e-mail address to which the report runs will be sent.

Step 7. Add a meter to the report by entering the following information:

- **Name** – Enter a name for the meter. This name will be used as a Tab name in the resulting spreadsheet.
- **Metric** – Select the metric you will be measuring for this meter in the report as one of the following:
 - **vCPU** – virtual CPU. You can select to measure utilization, which is the average CPU utilization of this instance as reported by the instance. Or, you can select to measure allocation, which is the total CPU allocated for use by the application when the application was created.
 - **Memory (GiB)** – You can select to measure utilization, which is the amount of data currently held in memory by the application instance. Or, you can select to measure allocation, which is the total memory allocated for use by the application when the application was created.
 - **Network Bandwidth (Mbps)** – amount of data received and transmitted from the network
 - **Storage Bandwidth (Mbps)** – amount of data transferred inbound and outbound from the disk(s) to the node.
 - **Storage IOPS** – You can select to measure utilization which refers to the number of read/write requests per second to the disk(s).
 - **Storage Capacity (GiB)** – You can select to measure utilization, which is the Storage used by the current instance, including snapshots on both local and all replication sites, but not including the base image, for instances created from template. This refers to the Storage used by the current instance, including snapshots on both local and all replication sites, for instances created from installer. You can also select to measure allocation, which is the total storage allocated for use by the application when the application was created.
- **Measure** – Select the measure for the metric as applicable. You can select either Utilization or Allocation for vCPU, Memory, and Storage Capacity metrics. You can only select Utilization for Network Bandwidth, Storage Bandwidth and Storage IOPS metrics. Generally, utilization refers

to the amount of the resource that is currently in use by the application. Allocation refers to the total resources allocated for use by the application when the application was created.

- **Rate and Rate Interval** – Enter a Rate and Rate Interval for this meter. The Rate is used with Rate Interval to define the Cost Metric to charge for the meter. For example, a rate of \$0.01 and a rate interval of 1 hour translates to \$0.10 per hour.

Step 8. Click **Add Another Meter** to add another meter to the report and repeat the preceding step. Otherwise, proceed to the next step.

Step 9. Select the Application and/or Data Center for which to run the report. You can select more than one.

Step 10. Click **Save** or click **Save and Add Another** if you want to create another report.

View a report

Complete these steps to view a report.

Step 1. From the Dashboard page, select a report from the list. The Report page opens.

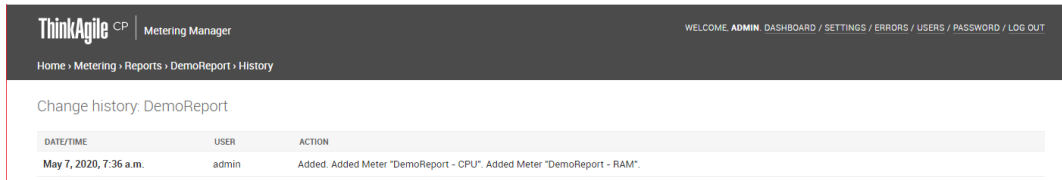
The screenshot shows the 'Report' page in the ThinkAgile CP Metering Manager. The page header includes the ThinkAgile CP logo and 'Metering Manager'. The breadcrumb trail is 'Home > Metering > Reports > DemoReport'. The page title is 'Report' with 'EDIT' and 'HISTORY' buttons. The configuration section includes: Name: DemoReport; Scheduled Interval: Manual; Custom start date (UTC): May 1, 2020, 7:35 a.m.; Custom end date (UTC): May 7, 2020, 7:35 a.m.; Report type: Summary; Output type: Local Database Only. Below this is a 'METERS' table with columns: NAME, METRIC, MEASURE, RATE, and RATE INTERVAL. The table contains two rows: CPU (VCPU, Allocation, 1.0, Hour) and RAM (Memory (GiB), Allocation, 1.0, Hour). Underneath is a 'RUN THIS REPORT ON (AND)' section with Applications: MigM-103-v056 and Data centers: (empty). The bottom section is 'REPORT RUNS' with columns: RUN DATE, STATE, RESULT MESSAGE, and RUN ACTIONS. It shows one run: DemoReport - 2 - 2020-09-07 07:36:46.723130+00:00, May 7, 2020, 7:36 a.m., Success, Success, with CSV and XLS export icons. The footer shows '1 - 1 / 1 Show all'.

Figure 14. Example report

Step 2. Under Report Runs, you will see all runs of the report with a Run Date, State (such as Success or Failure), and Result Messages. For many reports, you can page through the list or click **Show all** to view the entire list.

Step 3. To view a specific run of a report, select and double-click the report in the Run Action column. The report, in Microsoft Excel format, will download to your system. You can then export the report as needed to be used in other business applications, such as billing.

Step 4. You can also click **History** at the top right of the page to view the change history of the report.



The screenshot shows the 'Change history: DemoReport' page. At the top, there is a navigation bar with 'ThinkAgile CP Metering Manager' on the left and 'WELCOME ADMIN DASHBOARD / SETTINGS / ERRORS / USERS / PASSWORD / LOG OUT' on the right. Below the navigation bar, the breadcrumb trail reads 'Home > Metering > Reports > DemoReport > History'. The main content area is titled 'Change history: DemoReport' and contains a table with the following data:

DATE/TIME	USER	ACTION
May 7, 2020, 7:36 a.m.	admin	Added. Added Meter "DemoReport - CPU". Added Meter "DemoReport - RAM".

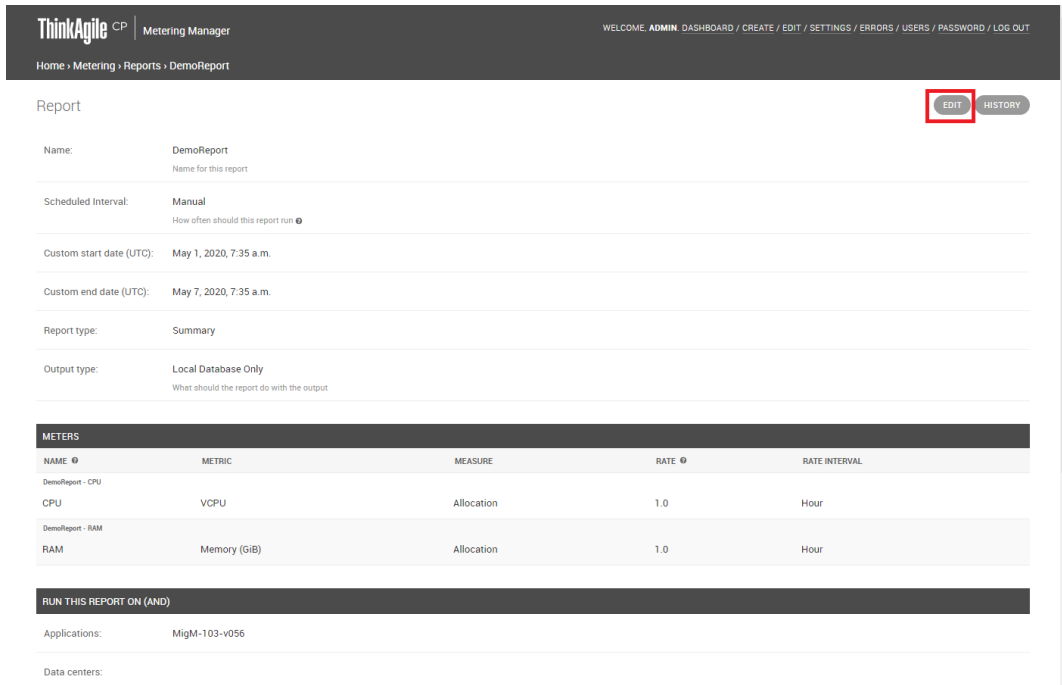
Figure 15. Report Change history

Modify a report

Complete these steps to modify a Metering Manager report.

Step 1. From the Dashboard page, select a report from the list. The Report page opens.

Step 2. Click **Edit** at the top right of the page.



The screenshot shows the 'Edit a report' page for 'DemoReport'. At the top, there is a navigation bar with 'ThinkAgile CP Metering Manager' on the left and 'WELCOME ADMIN DASHBOARD / CREATE / EDIT / SETTINGS / ERRORS / USERS / PASSWORD / LOG OUT' on the right. Below the navigation bar, the breadcrumb trail reads 'Home > Metering > Reports > DemoReport'. The main content area is titled 'Report' and contains several form fields and a table. The 'EDIT' button is highlighted with a red box. The form fields are:

- Name: DemoReport (Name for this report)
- Scheduled Interval: Manual (How often should this report run)
- Custom start date (UTC): May 1, 2020, 7:35 a.m.
- Custom end date (UTC): May 7, 2020, 7:35 a.m.
- Report type: Summary
- Output type: Local Database Only (What should the report do with the output)

Below the form fields is a table titled 'METERS' with the following data:

NAME	METRIC	MEASURE	RATE	RATE INTERVAL
DemoReport - CPU	CPU	Allocation	1.0	Hour
DemoReport - RAM	RAM	Memory (GiB)	1.0	Hour

Below the table is a section titled 'RUN THIS REPORT ON (AND)' with the following data:

Applications: MigM-103-v056

Data centers:


Figure 16. Edit a report


Step 3. Enter a new name in the Name field to change the name of the report.

Step 4. To modify the Scheduled Interval, select one of the following scheduled time intervals for when you want the report to run.


- **Hourly** – This report captures data from the start of the previous hour to the start of the most recent hour. For example, if the report runs at any time between 10:00 a.m. and 10:59 a.m. inclusive, the results will show data from 9:00 a.m. to 10:00 a.m.
- **Daily** – Select the hour of the day to run the report. This report captures data for the previous day regardless of when you run the report.
- **Weekly** – Select the day of the week and the time of day to run the report. Captures data for the previous week regardless of the day you run the report.


- **Monthly** – Select the day of the month and the hour of the day to run the report. This report captures data for the previous month regardless of the day you run the report.
- **Manual** – Select a custom start date and time and a custom end date and time. This report captures data for the custom defined interval.

Scheduled Interval: 

How often should this report run 


Custom start date (UTC):


Date: Today 

Time: Now 

Note: You are 4 hours behind server time.

Custom end date (UTC):

Date: Today 

Time: Now 

Note: You are 4 hours behind server time.

Figure 17. Define a custom interval for the report

Step 5. To change the Report Type, select one of the following:

- **Summary** – Provides a summary total of the report meters.
- **Detail** – Provides all details per timestamp of the specified time interval and report meters.

Step 6. To change the Output Type, select one of the following:

- **Local Database Only** – The report runs are stored on the local database for the Metering Manager application.
- **Email and Local Database** – In addition to being stored in the local database, you will be prompted to enter an e-mail address to which the report runs will be sent.

Step 7. To change a meter in the report, modify the following information as needed:

- **Name** – Enter a name for the meter. his name will be used as a Tab name in the resulting spreadsheet.
- **Metric** – Select the metric you will be measuring for this meter in the report as one of the following:
 - **vCPU** – virtual CPU. You can select to measure utilization, which is the average CPU utilization of this instance as reported by the instance. Or, you can select to measure allocation, which is the total CPU allocated for use by the application when the application was created.
 - **Memory (GiB)** - You can select to measure utilization, which is the amount of data currently held in memory by the application instance. Or, you can select to measure allocation, which is the total memory allocated for use by the application when the application was created.
 - **Network Bandwidth (Mbps)** – amount of data received and transmitted from the network
 - **Storage Bandwidth (Mbps)** – amount of data transferred inbound and outbound from the disk(s) to the node.
 - **Storage IOPS** – You can select to measure utilization which refers to the number of read/write requests per second to the disk(s).
 - **Storage Capacity (GiB)** – You can select to measure utilization, which is the Storage used by the current instance, including snapshots on both local and all replication sites, but not including the base image, for instances created from template. This refers to the Storage used by the current instance, including snapshots on both local and all replication sites, for

instances created from installer. You can also select to measure allocation, which is the total storage allocated for use by the application when the application was created.

- **Measure** – Select the measure for the metric as applicable. You can select either Utilization or Allocation for vCPU, Memory, and Storage Capacity metrics. You can only select Utilization for Network Bandwidth, Storage Bandwidth and Storage IOPS metrics. Generally, utilization refers to the amount of the resource that is currently in use by the application. Allocation refers to the total resources allocated for use by the application when the application was created.
- **Rate and Rate Interval** – Enter a Rate and Rate Interval for this meter. The Rate is used with Rate Interval to define the Cost Metric to charge for the meter. For example, a rate of \$0.01 and a rate interval of 1 hour translates to \$0.10 per hour.

Step 8. Click **Add Another Meter** to add another meter to the report and repeat the preceding step. Otherwise, proceed to the next step.

Step 9. To modify the application or Data Center, select or remove Applications and/or Data Centers for which to run the report. You can select more than one.

Step 10. Click **Save** or click **Save and Add Another** if you want to create another report.

Delete reports

Complete these steps to delete Metering Manager reports.

Step 1. In the Dashboard, select the report(s) you want to delete.

Step 2. In the Actions drop-down menu, click **Delete Selected Reports**.

Manage Groups and Users

In the ThinkAgile CP Metering Manager you can easily manage users and groups, such as adding groups, adding and assigning users to groups, modifying users, and modifying groups.

Refer to the following topics:

- [“View groups” on page 15](#)
- [“Add a group” on page 16](#)
- [“Modify a group” on page 17](#)
- [“Delete a Group” on page 17](#)
- [“View Metering Manager users” on page 17](#)
- [“Add a User” on page 18](#)
- [“Modify a user” on page 19](#)
- [“Delete users” on page 21](#)

View groups

Follow these steps to view groups in the ThinkAgile CP Metering Manager.

Step 1. In the top navigation menu, click **Users**.



Figure 18. Users menu

Step 2. On the Users and Group Administration page, click **Groups**. The Select group to change page opens.

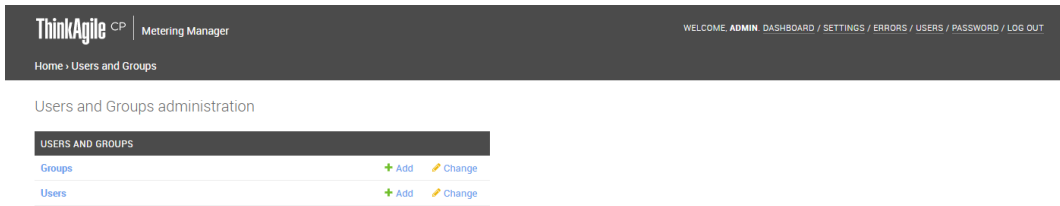


Figure 19. View Groups

Step 3. In the Search field, you can enter text and click **Search** to search the list of groups.

Step 4. Select a group in the list to view or change group details.

Add a group

Follow these steps to add a group to the ThinkAgile CP Metering Manager.

Step 1. In the top navigation menu, click **Users**.



Figure 20. Users menu

Step 2. On the Users and Group Administration page, click **Add** next to Groups.

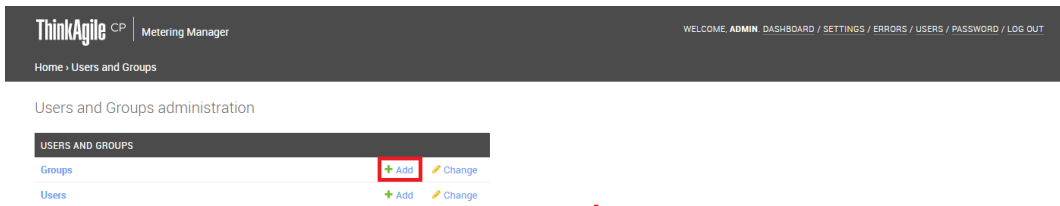


Figure 21. Add Group

Step 3. On the Add Group page, enter a name for the Group.

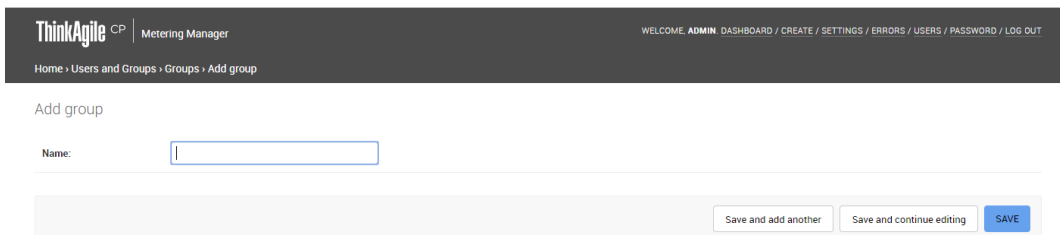


Figure 22. Add Group page

Step 4. Click **Save** or click **Save and Add Another** to add another group.

Modify a group

Follow these steps to modify a group in the ThinkAgile CP Metering Manager.

Step 1. In the top navigation menu, click **Users**.



Figure 23. Users menu

Step 2. On the Users and Group Administration page, click **Change** next to Groups.

Step 3. On the Select Group to Change page, select the group you want to modify.

The Change Group page opens.

Step 4. Modify the Group Name as needed.

Step 5. Click **Save** or click **Save and Add Another** to add another user.

Delete a Group

Follow these steps to delete a group from the ThinkAgile CP Metering Manager.

Step 1. In the top navigation menu, click **Users**.



Figure 24. Users menu

Step 2. On the Users and Group Administration page, click **Change** next to Groups.

Step 3. On the Select Group to Change page, select the group(s) you want to delete.

Step 4. In the Action drop-down menu, select **Delete Selected Groups**, and click **Go**.

View Metering Manager users

You can view all users with access to the Metering Manager instance.

Complete the following steps to view all Metering Manager users:

Step 1. In the top navigation menu, click **Users**.



Figure 25. Users menu

Step 2. On the Users and Group Administration page, click **Users**. The Select user to change page opens.

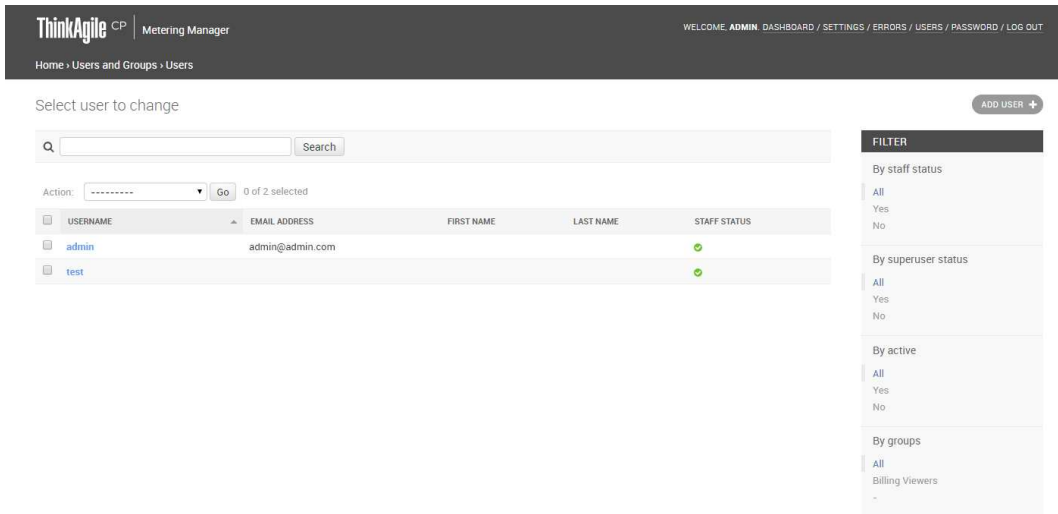


Figure 26. View Metering Manager users

- Step 3. In the Search field, you can enter text and click **Search** to search the list of users.
- Step 4. Under Filter, you can filter the list of users by selecting one of the following filters:
- **By Staff Status** – Select All, Yes, or No.
 - **By Super User Status** – Select All, Yes, or No.
 - **By Active** – Select All, Yes, or No.
 - **By Group** – Select a specific group for which to view users.
- Step 5. Select a user in the list to view or change user details.

Add a User

Follow these steps to add a user to the ThinkAgile CP Metering Manager.

- Step 1. In the top navigation menu, click **Users**.



Figure 27. Users menu

- Step 2. On the Users and Group Administration page, click **Add** next to Users.

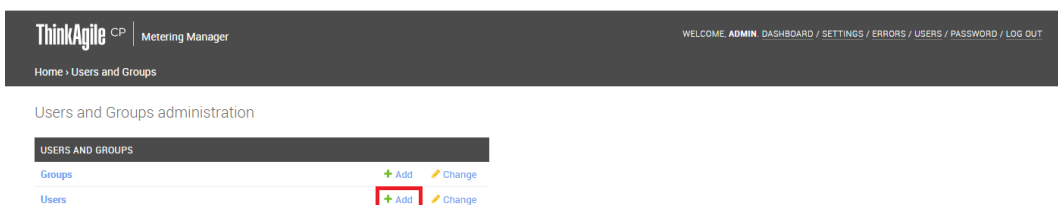


Figure 28. Add user

The Add User page opens.

Figure 29. Add User page

Step 3. Enter a user name for the user.

Step 4. Enter and confirm the password for the user. Keep the following in mind when entering a password.

Notes:

- The password can't be too similar to the user's other personal information.
- The password must contain at least 8 characters.
- The password can't be a commonly used password.
- The password can't be entirely numeric.

Step 5. Click **Save** or click **Save and Add Another** to add another user.

Step 6. To assign this user to a group, see the topic below, [“Modify a user” on page 19.](#)

Modify a user

Follow these steps to modify users of the ThinkAgile CP Metering Manager.

Step 1. In the top navigation menu, click **Users**.



Figure 30. Users menu

Step 2. On the Users and Group Administration page, click **Change** next to Users.

Step 3. On the Select User to Change page, select the user you want to modify.

The Change User page opens.

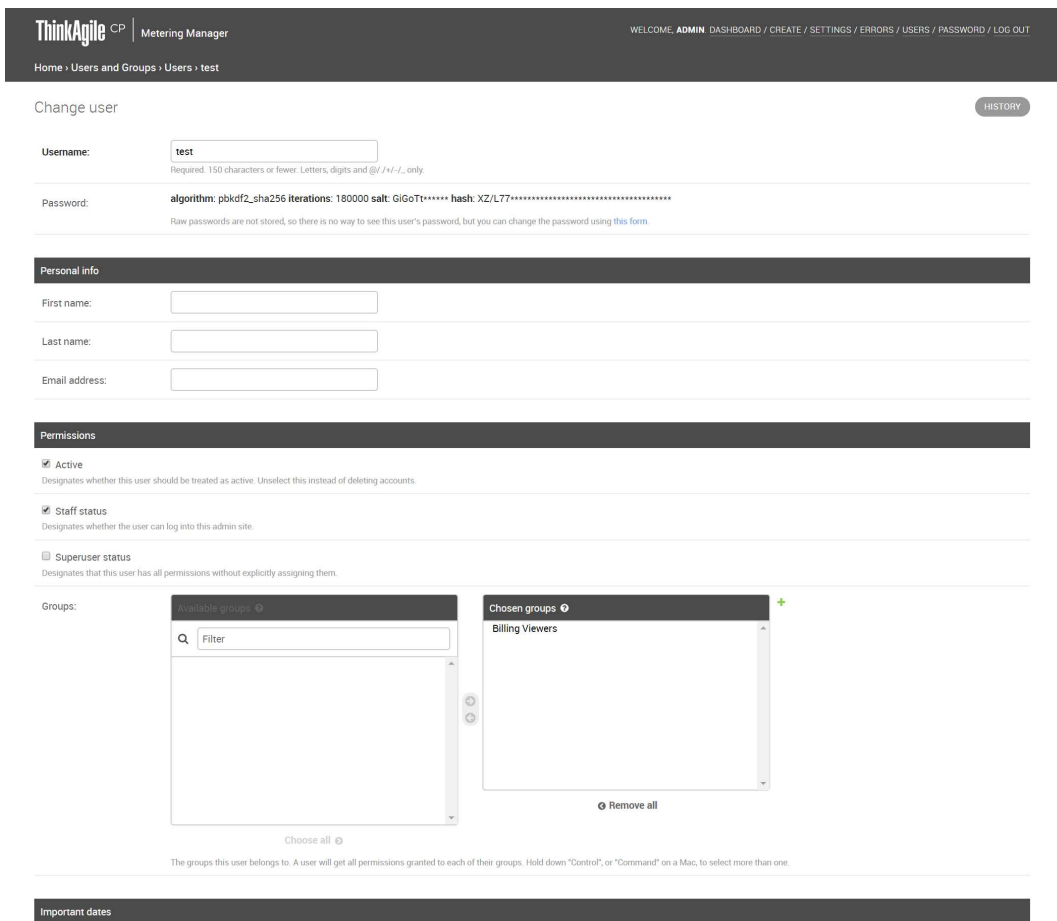


Figure 31. Change User page

Step 4. To change the user name, enter a new user name in the Username field.

Step 5. To change the user password, click the **Change Password Form** link.

Note: Raw passwords are not stored, so there is no way to see this user's password, but you can change the password using the link provided.

Step 6. Enter a new password and confirm the new password. Keep the following in mind when entering a password.

Notes:

- The password can't be too similar to the user's other personal information.
- The password must contain at least 8 characters.
- The password can't be a commonly used password.
- The password can't be entirely numeric.

Step 7. If needed, enter the following personal information: First Name, Last Name, and Email address.

Step 8. Under Permissions, you can define permissions and assign groups for the user as needed.

- Select **Active** to designate if this is an active user. Clear this checkbox to deactivate the user.
- Select **Staff Status** to designate whether the user can log in to the admin site.
- Select **Superuser Status** to designate that the user has all permissions to the site.

- Next to Groups, double-click the group(s) in the Available Groups column to which you want to assign the user.
- To remove the user from the group(s), double-click the group(s) in the Chosen Groups column from which you want to remove the user.

Step 9. Click **Save** or click **Save and Add Another** to add another user.

Delete users

Follow these steps to delete users from the ThinkAgile CP Metering Manager.

Step 1. In the top navigation menu, click **Users**.



Figure 32. Users menu

Step 2. On the Users and Group Administration page, click **Change** next to Users.

Step 3. On the Select User to Change page, select the user(s) you want to delete.

Step 4. In the Action drop-down menu, select **Delete Selected Users**, and click **Go**.

Change the account password

Follow these steps to change your account password in the ThinkAgile CP Metering Manager.

Step 1. To change your Metering Manager account password, click **Password** in the top navigation menu.



Figure 33. Change Account Password

The Password Change page opens.

 This screenshot shows the 'Password change' page. At the top, it says 'ThinkAgile CP Metering Manager' and 'Home > Password change'. Below the header, there is a heading 'Password change' and a sub-heading 'Please enter your old password, for security's sake, and then enter your new password twice so we can verify you typed it in correctly.' There are three input fields: 'Old password:', 'New password:', and 'New password confirmation:'. Below the 'New password:' field, there are four lines of small text providing password requirements: 'Your password can't be too similar to your other personal information.', 'Your password must contain at least 8 characters.', 'Your password can't be a commonly used password.', and 'Your password can't be entirely numeric.' At the bottom right, there is a blue button labeled 'CHANGE MY PASSWORD'.

Figure 34. Password Change page

Step 2. Enter your old password, enter your new password, and confirm your new password. Keep the following in mind when entering a password.

Notes:

- The password can't be too similar to the user's other personal information.
- The password must contain at least 8 characters.
- The password can't be a commonly used password.
- The password can't be entirely numeric.

Step 3. Click **Change My Password**.

Accessing the Metering Manager Instance Overview

This section covers how to access the Metering Manager Instance Overview.

Step 1. Once the Metering Manager Instance is configured, you access it by navigating to **Applications** → **All Instances**, or to **VDC Instances** under your virtual datacenter.

Step 2. Select the Metering Manager from the list of application instances.

Application Instances 0 9 New Instance

Filter by

Start/resume Pause Shutdown 0 selected

Name	IP Address(es)	CPU (cores)			Memory		NW BW (Mbps)		ST BW (Mbps)		IOPS		IO QL	
		Prov.	% vCPU	% CPU	Prov.	Load	Read	Write	Read	Write	Read	Write		
AP WinServer2016	10.240.22.216	4	0%	5%	8 GiB	2 GiB	0	0	0	0	0	1	0	
CentOS 7 with FIO	10.10.10.23	8	37%	45%	32 GiB	1 GiB	0	0	33.3	14.3	8129	3497	0	
CentOS 7.5_longevity	10.10.10.22	4	0%	0%	2 GiB	572 MiB	0	0	0	0	0	0	0	
CentOS 7.5_uma	10.10.10.48	2	0%	0%	2 GiB	496 MiB	0	0	0	0	0	0	0	
Metering Manager	10.10.10.30	2	0%	1%	8 GiB	1.6 GiB	0	0	0	0	0	0	0	
RHEL 7.4_Longevity	10.10.10.26	2	0%	0%	2 GiB	355 MiB	0	0	0	0	0	0	0	
VNET_Default-NFV	10.10.10.2...	1	0%	0%	1 GiB	295 MiB	0	0	0	0	0	0	0	
Windows Server 2016_lo...	10.10.10.24	8	0%	3%	32 GiB	1.7 GiB	0	0	0	0	0	0	0	
Windows Server 2019_Lo...	10.10.10.25	8	0%	9%	32 GiB	1.9 GiB	0	0	0	0	0	1	0	

Figure 35. Application Instances List

The Metering Manager Instance Overview is displayed.

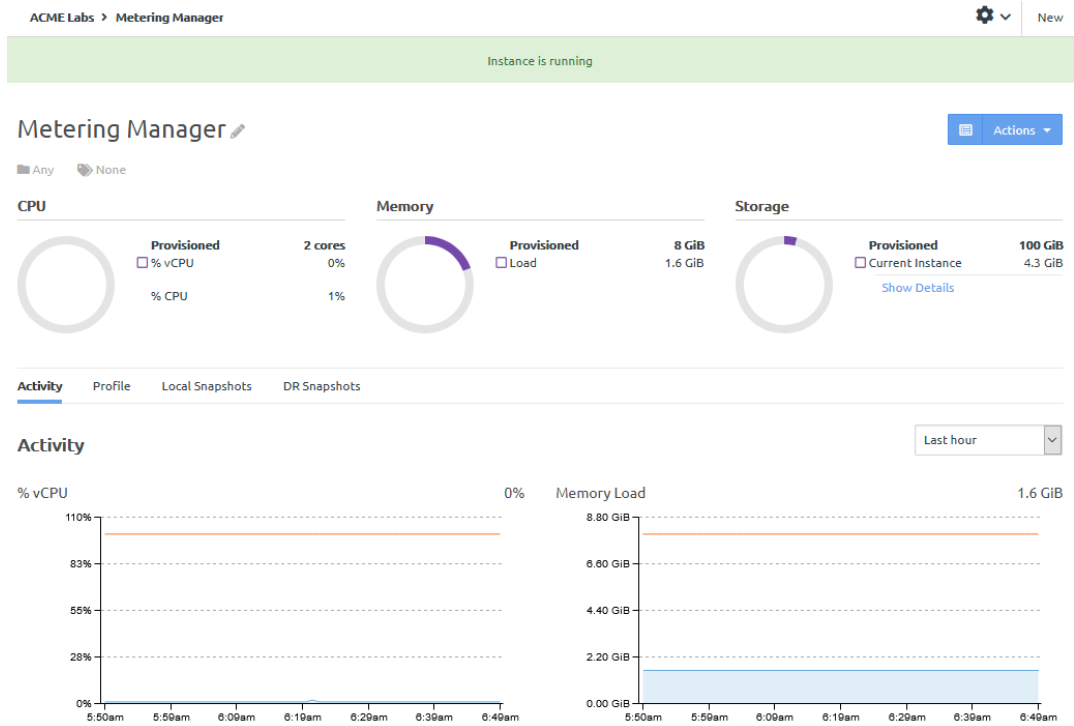


Figure 36. Metering Manager Overview

Metering Manager Overview Details

This section covers an overview of the Metering Manager Overview details.

The Instance Overview displays information about the following topics:

- Instance State
- Resource Usage
- Activity
- Profile
- Local Snapshots
- Disaster Recovery (DR) Snapshots

Activity Profile Local Snapshots DR Snapshots

Instance State

At the top of the Metering Manager Instance Overview, the current state of the application is displayed:

- Instance is running
- Instance is paused
- Restarting application instance
- Shutting down application instance

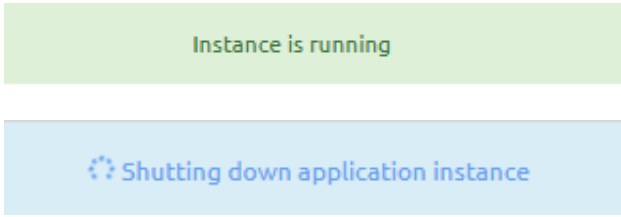


Figure 37. Metering Manager States

Resource Usage

The Instance Overview displays the provisioned resources (CPU cores, memory and storage), and their current use.

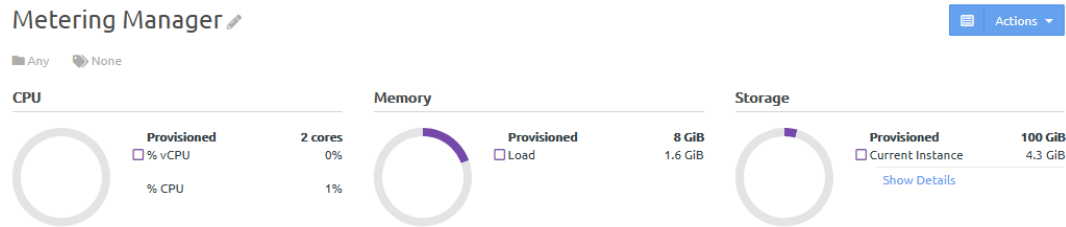


Figure 38. Metering Manager Resource Usage

Action Menu

This section covers the available options under the Action menu of the Metering Manager.

From the **Actions** menu of the application instance, you can perform a multitude of actions.

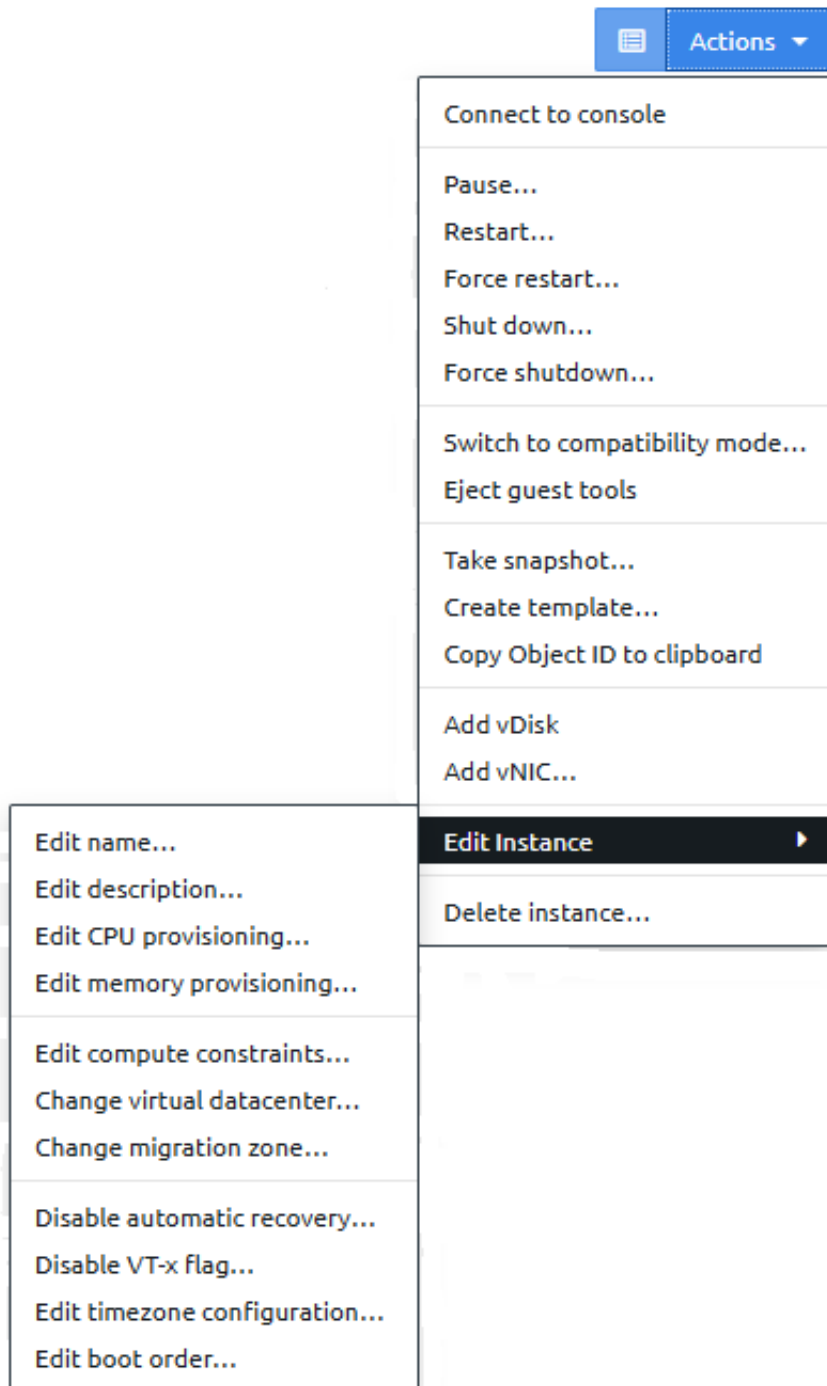


Figure 39. Metering Manager Action Menu Options

Connect to console

This option opens a connection to the Linux Kernel for the Metering Manager instance.

Instance State

To change the current state of the Metering Manager instance by selecting the following actions:

- **Pause...** — pause the operation of the application instance

- **Resume...** — resume the operation the application instance
- **Note:** This option is available only once the instance is paused.
- **Restart...** — restart the application instance
- **Force restart...** — forcefully restart the application instance
- **Shut down...** — shut down the application instance
- **Force shutdown...** — forcefully shut down the application instance

Instance Modes

The **Switch to...** action enables to change the instance mode for the Metering Manager. You can choose between enhanced mode and compatibility mode.

Note: The application instance must be first shut down before changing the instance mode.

Guest Agent Tools

To detach all Guest Agent tools from the instance, select the **Eject guest tools** option.

The Guest Agent tools can be attached by clicking the **Insert guest tools** option.

Snapshot

To create a snapshot of the current instance, select the **Take snapshot...** option.

Take a Snapshot

Instance	Metering Manager
-----------------	------------------

Name

Create Template

To create a new application template with the current configured instance settings, select the **Create template...** option.

Create Application Template

Save to:

Select one

Template Properties

Template Name

Metering Manager template

Description

Metering Manager

OS Type

Linux

Source Application

Metering Manager

Virtual Datacenter

ACME Labs

Provisioning

CPU

2

cores

Memory

8

GIB

Boot Order

Boot Order

Disk 0 > vNIC 0

Instance Settings

Instance Mode

Compatibility Mode

All instances can boot in this mode.

Enhanced Mode

Virio drivers must be installed to boot in this mode.

Enhanced Mode

In this mode:

- Storage disks are exported as virtio iSCSI devices
- vNICs are exported as virtio vNICs
- Snapshots will be application consistent (when ThinkAgile CP Guest Agent is installed) if the guest OS supports freeze and thaw
- CPU and Memory Statistics are available (When ThinkAgile CP Guest Agent is installed)

Learn more about [instance modes](#)

Sysprep

Partial Sysprep

Resets the hostname and resets the network to DHCP.

Full Sysprep

Resets hostname and other identifiable information of the VM. Network mode will be set to DHCP.

Note: Full Sysprep is not available for a running instance or an instance with a vNIC as the first item in the boot order.

Cancel

Save as Application Template

You can edit the following parameters:

- The destination of the new template
- The name and description of the new template
- The number of CPU cores and memory provisioned
- The boot sequence of the instance
- The instance mode
- The extent of sysprep (System Preparation)

Copy Object ID

To copy the object ID of the Metering Manager instance, select the **Copy Object ID to clipboard** option.

Add a vDisk

To add a new virtual disk (vDisk) to the application instance, select the **Add vDisk** option.

New vDisk

Enter details for the new vDisk

vDisk Name

vDisk Size

Add custom limits if needed. IOPS and bandwidth are unlimited by default.

IOPS Limit

Bandwidth Limit

You can configure the following parameters:

- **vDisk Name** — the name of the new virtual disk
- **vDisk Size** — the size in GB of the new virtual disk
- **IOPS Limit** — whether to limit the number of Input/Output operations per second
- **Bandwidth Limit** — whether to limit the allocated bandwidth in Mbps

Add a vNIC

To add a new virtual network interface controller (vNIC) to the application instance, select the **Add a vNIC** option.

Note: The instance must be first shut down before adding any vNICs.

New vNIC

Instance Metering Manager

Enter vNIC properties

vNIC Name

Networking Mode

Network

Firewall Profile

Firewall Override

MAC Address

You can configure the following parameters:

- **vNIC Name** — the name of the new vNIC
- **Networking Mode** — the network mode of operation(VNET or VLAN)
- **Network** — the network used by the new vNIC
- **Firewall Profile and Override** — the firewall settings for the new vNIC
- **MAC Address** — whether the new vNIC is assigned automatically assigned a MAC address, or one is supplied manually

Edit the Instance

From the **Edit Instance** menu, you can configure multiple application instance parameters. For more details, see [“Profile” on page 31](#).

Delete the Instance

To delete the Metering Manager application instance, select the **Delete Instance...** option.

Activity

This section covers the information displayed under the **Activity** tab of the Metering Manager.

CPU, Memory and Network Statistics

The first section of the **Activity** tab displays statistics regarding the CPU load, memory load, and network read and write bandwidths. These statistics can be viewed for several time periods:

- Last hour
- Last 6 hours

- Last 12 hours
- Last 24 hours
- Last 7 days
- Last month
- Last 3 months
- Last year

Activity

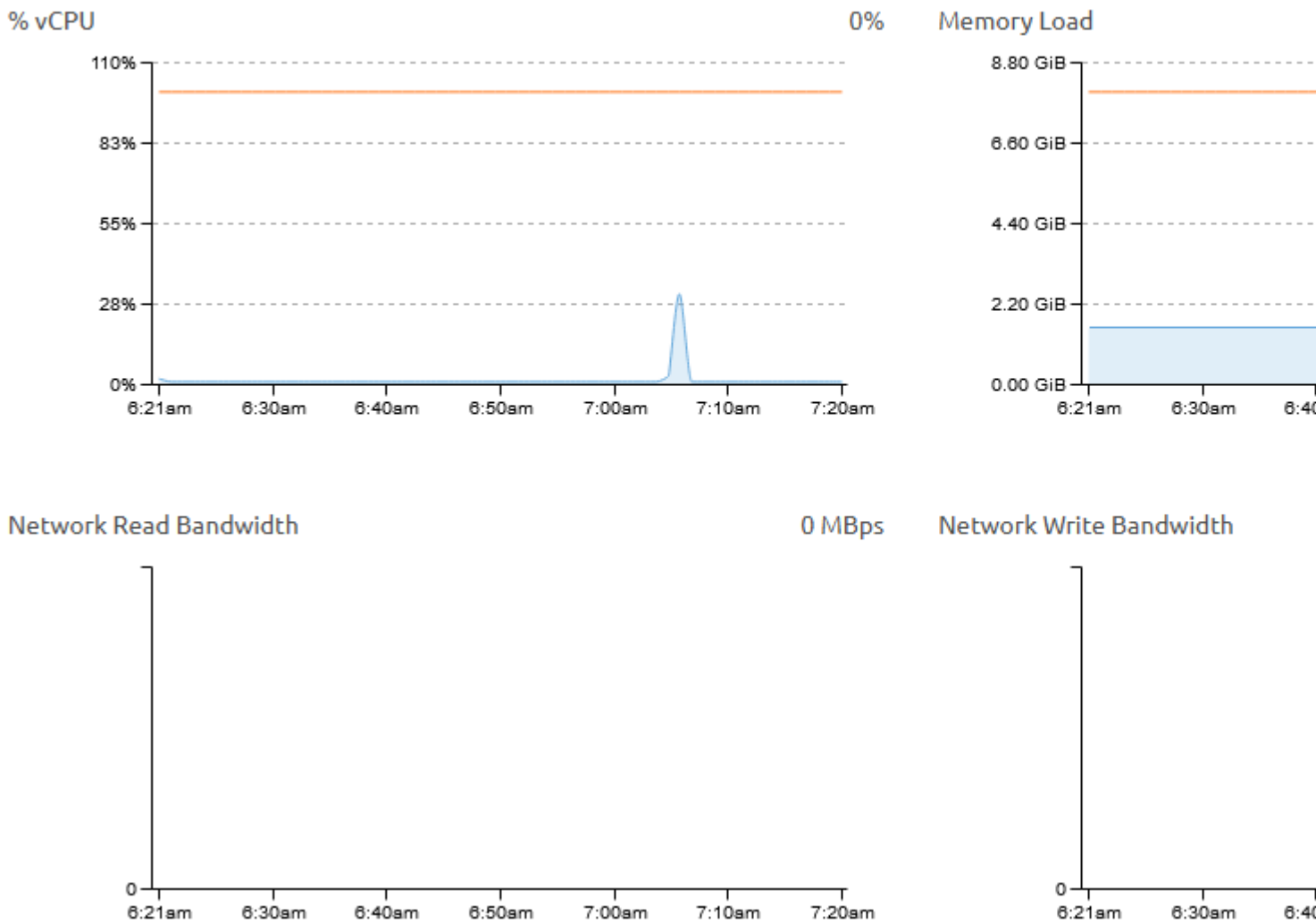


Figure 40. CPU, Memory and Network Usage Statistics

Storage Statistics

The second section of the **Activity** tab displays statistics regarding storage usage. These statistics include the following:

- Storage Instance
- Storage Footprint

- Storage Read Bandwidth
- Storage Write Bandwidth
- Read IOPS
- Write IOPS
- IO Queue Length (Average Across Disks)

You can select a specific storage disk from the drop-down menu.

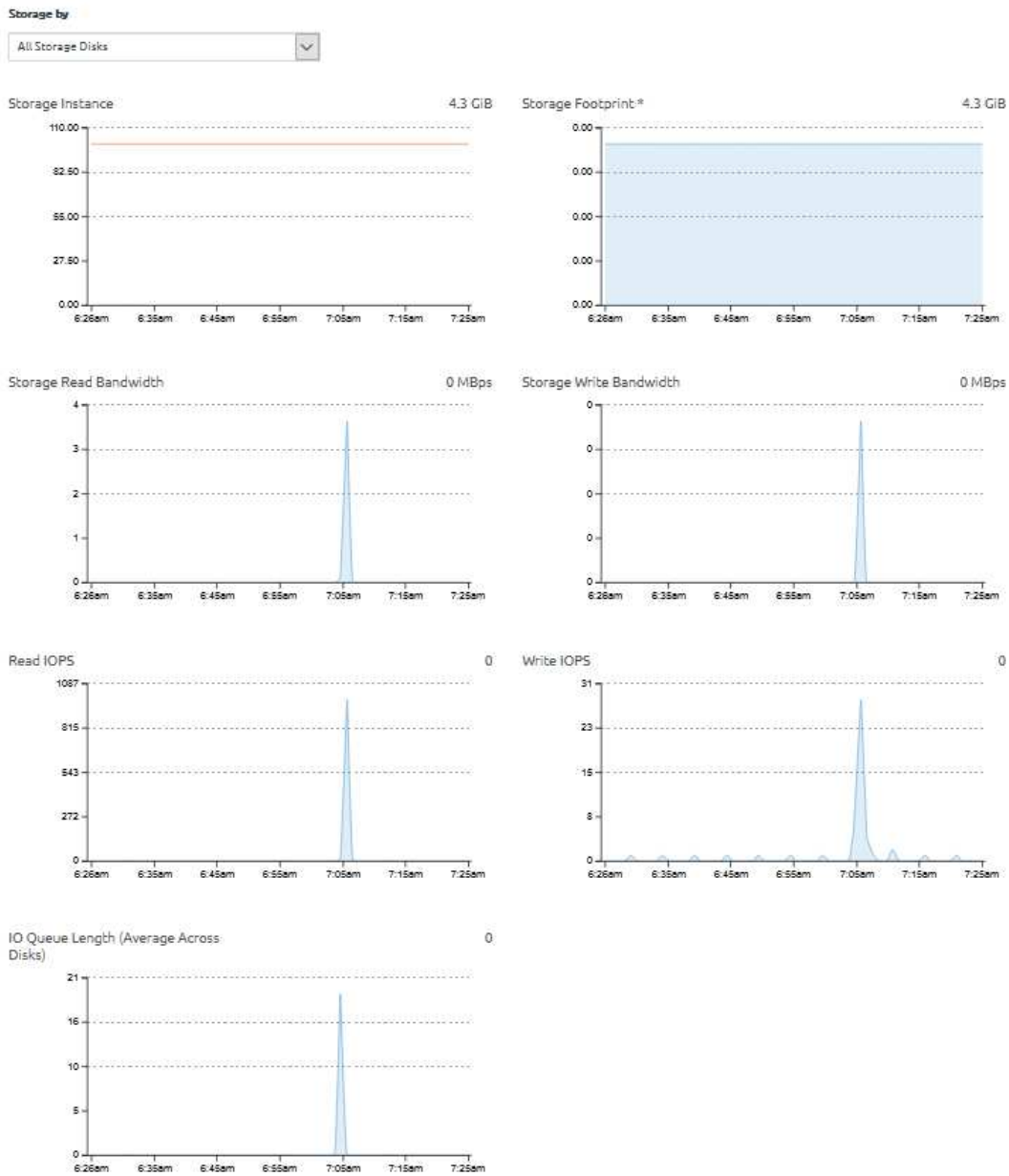


Figure 41. Storage Statistics

Profile

This section covers the Metering Manager **Profile** information and editable parameters.

Note: Any profile editing actions are available only when the Metering Manager application instance is shutdown. You can edit these parameters when the instance is running or it is paused.

General

This section covers the basic parameters for the application instance. These include:

- **Description** — the description of the Metering Manager instance
- **Virtual Datacenter** — the assigned VDC
- **Instance Mode** — the application instance mode: Enhanced or Compatibility

For more details about instance modes, see https://thinkagile.lenovofiles.com/help/topic/thinkagile_cp/understand-instance-modes.html.

- **ThinkAgile CP Guest Agent** — the currently installed guest agent tools

For more details about guest agents, see https://thinkagile.lenovofiles.com/help/topic/thinkagile_cp/install-guest-agent-tools.html.

Note: This option is available only when Enhanced Instance Mode is configured.

General



Description	Metering Manager 1.1. CentOS 7.6 (64-bit) template with Metering Manager. 
Virtual Datacenter	ACME Labs 
Instance Mode	Enhanced (Switch to compatibility mode)
ThinkAgile CP Guest Agent	—

Figure 42. Metering Manager Instance Profile — General parameters

Compute

This section covers the compute parameters for the Metering Manager instance. These include:

- **Migration Zone** — the migration zone assigned to the instance
- **Node** — specific compute nodes assigned to the instance
- **Compute Constraints** — any configured compute constraints applied to the instance
- **Provisioning** — the number of CPU cores and memory allocated to the instance

Compute

Migration Zone	zone1 
Node	—
Compute Constraints	CATEGORY Any TAGS Not Specified 
Provisioning	CPU 2 cores  MEMORY 8 GiB 

Figure 43. Metering Manager Instance Profile — Compute parameters

Storage

This section covers the storage parameters for the Metering Manager instance. These include:

- **Storage Pool** — the storage pool assigned to the instance
- **Virtual Disks (vDisks)** — the virtual storage disks assigned to the instance

Storage

At least one virtual disk must be present.

Storage Pool pool1

Virtual Disks (vDisks)

[+ Add vDisk](#)

Name	Size	IOPS Limit	Bandwidth Limit	
Disk 0	100 GiB	—	—	...

Figure 44. Metering Manager Instance Profile — Storage parameters

Networking

This section covers the virtual Network Interface Controllers (vNICs) assigned to the Metering Manager instance.

Networking

At least one virtual network interface controller must be present.

Virtual Network Interface Controllers (vNICs)

[+ Add vNIC](#)

vNIC	IP Address	MAC Address	Networking Mode	Network	Firewall Profile	Firewall Override	
vNIC 0	—	b4:d1:35:00:00:ac (automatic)	VNET	VNET_Default	—	—	...

Figure 45. Metering Manager Instance Profile — Networking parameters

Settings

This section covers various settings for the Metering Manager instance. These include:

- **Boot Order** — the boot sequence for the application
- **Timezone Configuration** — the configured timezone

Note: By default, this setting is set to the timezone of the compute node on which the instance is started.

- **Automatic Recovery** — the current state of automatic recovery
- **VT-x flag** — the current state of the VT-x flag

Note: If enabled, this settings enables nested virtualization of KVM hypervisors in your ThinkAgile CP environment.

Settings

Boot Order	Disk 0 > vNIC 0
Timezone Configuration	Default
Automatic Recovery	Enabled (Disable)
VT-x flag	Enabled (Disable)

Figure 46. Metering Manager Instance Profile — Settings

Local Snapshots

This section covers the Metering Manager **Local Snapshots**.

In the **Local Snapshot** tab of the Metering Manager, you can take a snapshot of the current instance, revert to an earlier snapshot of the instance, or manage existing snapshots within the snapshot tree.

By default, the Metering Manager creates an initial instance snapshot after the template is downloaded.

You can create a new snapshot by clicking the **Take Snapshot** button.

Take a Snapshot

Instance Metering Manager

Name

The new snapshot is added to the snapshot tree, under the initial application snapshot.

Local Snapshots Enable Automatic Snapshots Take Snapshot ...

pool1

Name	Snapshot Time	Incremental Size	Replication Status
Initial Application Snapshot (from template)	May 11, 2020 9:43 AM	0 MiB	Revert ...
Snapshot 1	May 12, 2020 8:28 AM	4.3 GiB	Revert ...

Figure 47. Metering Manager Local Snapshots Overview

From the Local Snapshots action menu ..., you can configure automatic snapshots, view the automatic snapshot settings, and delete all created snapshots. When configuring automatic snapshots, you can set the following parameters:

- The maximum number of stored snapshots

Note: If this number is exceeded, the oldest snapshots are deleted so new snapshots can be created.

- The time interval when to create an automatic snapshot
- The point in time when the automatic snapshot process starts

Enable Automatic Snapshots

Instance	Metering Manager
----------	------------------

Number of automatic snapshots to retain
Maximum: 1024

NOTE: The oldest local automatic snapshot will be deleted to maintain the number of automatic snapshots entered.

Take an automatic snapshot

Automatic snapshot policy

Figure 48. Configuring Automatic Snapshots

Disaster Recovery Snapshots

This section covers the Metering Manager **DR Snapshots**.

ThinkAgile CP supports a comprehensive retention policy for snapshots. You can specify how many snapshots to keep at the remote site (daily, weekly, monthly or yearly) and the system automatically does the roll-up.

For more details about disaster recovery, see https://thinkagile.lenovofiles.com/help/topic/thinkagile_cp/disaster-recovery.html.

Under the **DR Snapshots** of the Metering Manager, you can view and manager Disaster Recovery (DR) Snapshots for the application instance.

Note: To manage DR snapshots, automatic snapshots and Disaster Recovery must first be enabled for the instance. Click on the **Enable Disaster Recovery** and configure the proper settings.

Turn On Disaster Recovery

Automatic snapshots must be turned on to enable disaster recovery.

Turn On Automatic Snapshot

Number of automatic snapshots to retain

Maximum: 1024

NOTE: The oldest local automatic snapshot will be deleted to maintain the number of automatic snapshots entered.

Take an automatic snapshot

Automatic snapshot policy

Disaster Recovery Settings

Copy automatic snapshots to

 (DR Location)

Retain all automatic snapshots for

 weeks

Retain

 daily snapshots

Retain

 weekly snapshots

Retain

 monthly snapshots

Retain

 yearly snapshots

Lenovo