Cloud Machine Manager User Guide

Blueberry Software Ltd

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1. What is Cloud Machine Manager?

Pay-as-you-go customers of Amazon Cloud services are charged even when their Cloud servers are not being used. Given that many Amazon servers are only needed during particular periods, during working hours for instance, but are frequently left on 24x7 because of the administrative overhead of turning them on and off, costs can soon mount up because the meter is always running.

Cloud Machine Manager (CMM) is a scheduling tool that turns on/off Amazon servers in response to user demand. It makes sure servers only switch on when they are needed, and then switches them off again when they are no longer needed, to save development companies, universities and small business a lot of money.

This ‘On Demand’ approach saves money by avoiding charges for unused server time, whilst ensuring resources are available when users need them. CMM automatically monitors workload so that unused servers can be identified and turned off. A powerful scheduling capability also ensures that servers are available during the periods they are needed.

When servers are turned off they are actually suspended rather than fully shut down, which makes them much faster to bring back online. They also perform quicker because system memory and caches remain populated with frequently accessed data.

Furthermore, there’s no need to access the AWS console - Cloud Machine Manager accesses the required server via HTTP, SSH or Terminal Services – so it’s switched on as soon as you go to use it. In addition, there’s also ‘CMM Starter’, a mobile and desktop that can be used to start and stop servers on demand.

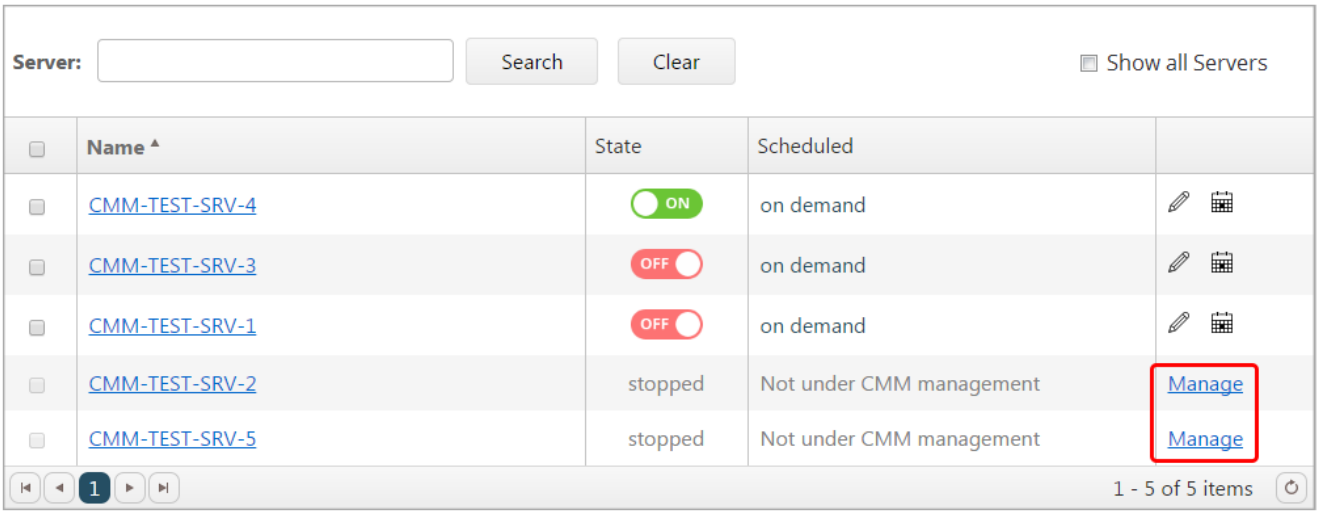
2. Managing a server with CMM

'On Demand' servers turn on only when they are needed. Cloud Machine Manager can detect when a user wants access to a site hosted by your server, turn it on and then back off again when it is no longer being used.

2.1. Configure the server to be under CMM Management

If the server is not currently managed by CMM, enable CMM management of it:

1. Log in to your CMM account.
2. On the Servers screen (where you will land by default after logging in), click on the **Manage** link for the server.



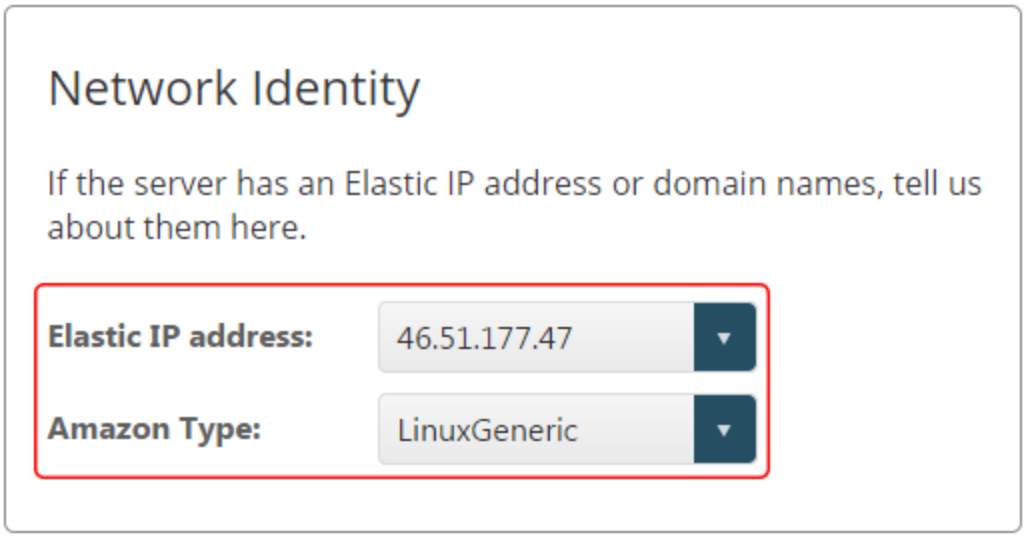
   The Server screen will refresh and the **Manage** link will be replaced by the **Edit** button and **Schedule** button.

   In the Scheduled column of the table it should now say "**on demand**".

Once a server is under CMM Management, the server's Elastic IP address (if it has one) and the type of server (Amazon instance type) are automatically detected. You can also add a server description to give additional details of the server.

These can be reviewed and updated by doing the following:

1. Log in to your CMM account.
2. On the Servers screen, click on the **Edit** button for the server – this will take you to the Identity tab of the Edit Server screen. The **Elastic IP address** and **Amazon Type** settings are found in the Network Identity section.

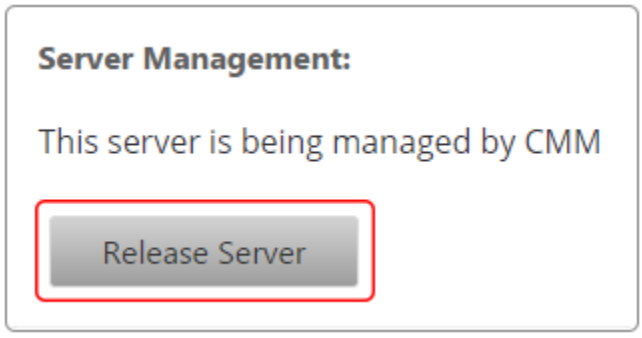


3. If the server has more than one elastic IP address assigned to it in Amazon, they will appear in the drop down menu. Simply choose the one that you want to use.
4. Click **Save** if any changes have been made.

2.2. Releasing a server from CMM Management

If you no longer wish to manage a particular server using CMM, release it on the Edit Server screen:

1. Log in to your CMM account.
2. On the Servers screen, click on the **Edit** button for the server – this will take you to the **Identity** tab of the Edit Server screen.
3. Click the **Release Server** button.



4. A confirmation popup will appear – click **Yes**.

When a server has been released, the Scheduled column of the Servers table will revert to “Not under CMM management”.

Alternatively, you can relase all servers simultaneously: **Note** – this is only accessible to users with the Account Administrator role.

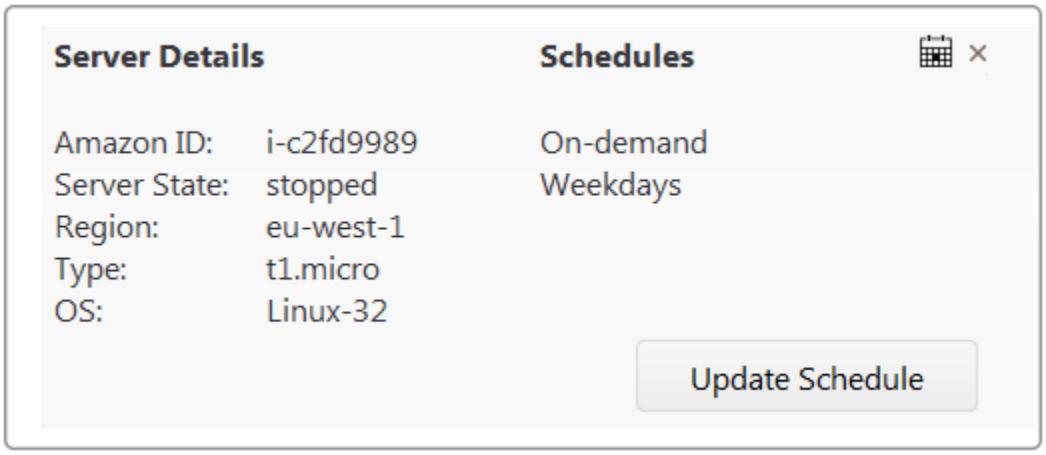
1. Log in to your CMM account.
2. Go to the **ADMIN** menu and select **MANAGE ACCOUNT** – this will take you to the Basic Details tab of the Manage Account screen.

3. Go to the *Amazon Web Services * tab.
4. Click the **Release All Servers** button.

5. Click **Yes** on the confirmation popup that appears.

2.3. Viewing server details

Clicking on a server name on the Servers screen will open a summary of that server's details.



The summary includes the following details:

- **Amazon ID** – The ID assigned to the server by Amazon.
- **Server State** – The current state of the server. The following states are available:
  - Running
  - Stopped
  - Pending
  - Shutting down
  - Terminated
  - Stopping
- **Region** – Amazon servers are hosted world-wide. This indicates where a particular server is geographically located.
- **Type** – Amazon provides a selection of server instance types optimized to fit different use cases. Instance types comprise varying combinations of CPU, memory, storage, and networking capacity. This indicates which particular type of instance this server is.
- **OS** – The operating system running on the server.
- **Schedules** – The schedules that have been applied to the server. **Note** – This does not give any details of

when each schedule is set to be active or which schedule is currently in use.

To view a summary of when each schedule is due to be used, click the Schedule button  (see Viewing the Schedules applied to a server for more details).

To update the schedules assigned to the server, click the Update Schedule link (see Adding a Schedule to a managed server for more details).

3. Schedules

A server that is managed by CMM can be configured to turn on and off at scheduled times.

For example, a server that is only needed during office hours may be scheduled to turn on at 9:00 on weekdays when workers are arriving at the office and then turn off again at 17:00 when they are leaving. Since no-one will be in the office at the weekend, the server will not turn on at all on Saturday or Sunday.

3.1. Creating a Schedule

To apply a schedule, you first need to create it in CMM's admin section.

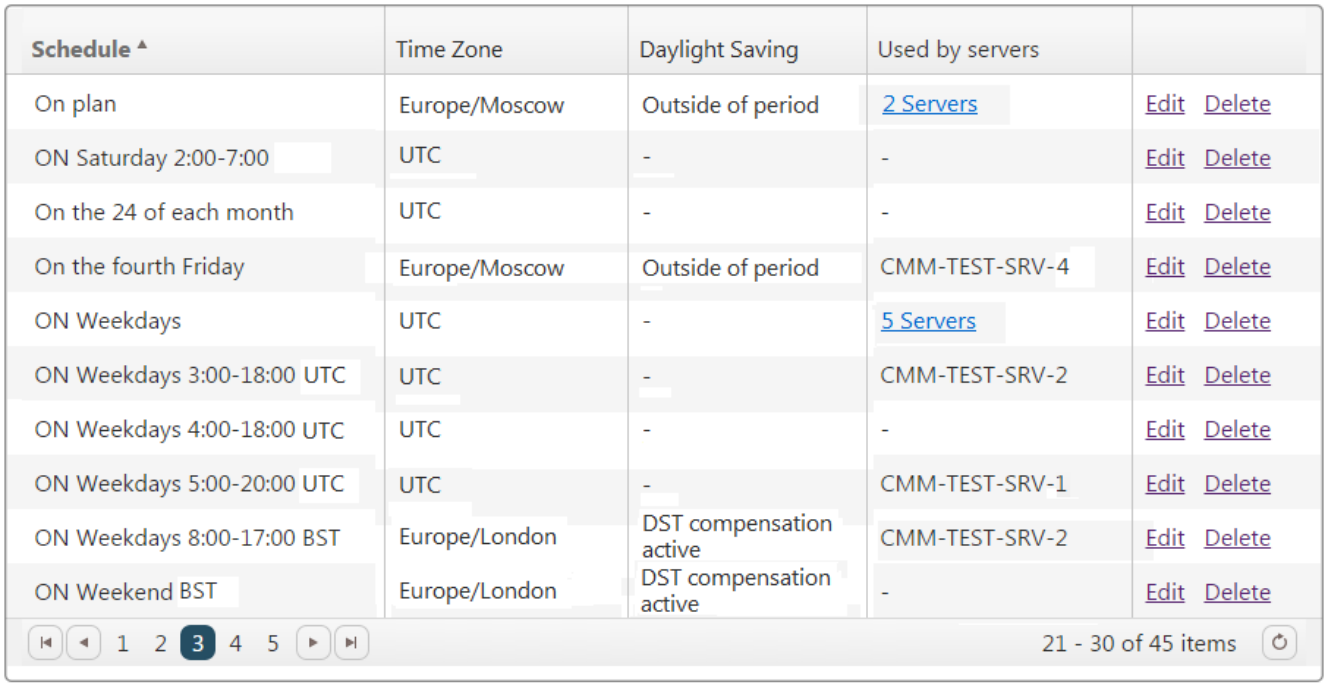
Note – this is only accessible to users with the Account Administrator role.

A schedule can be used to perform the following events:

- Turn a server on
- Turn a server off
- Set a server to be On Demand

To create a schedule:

1. Log in to your CMM account.
2. Go to the **ADMIN** menu and select **MANAGE SCHEDULES** – this will take you to the Manage Schedules page where all existing Schedules are listed in the grid.



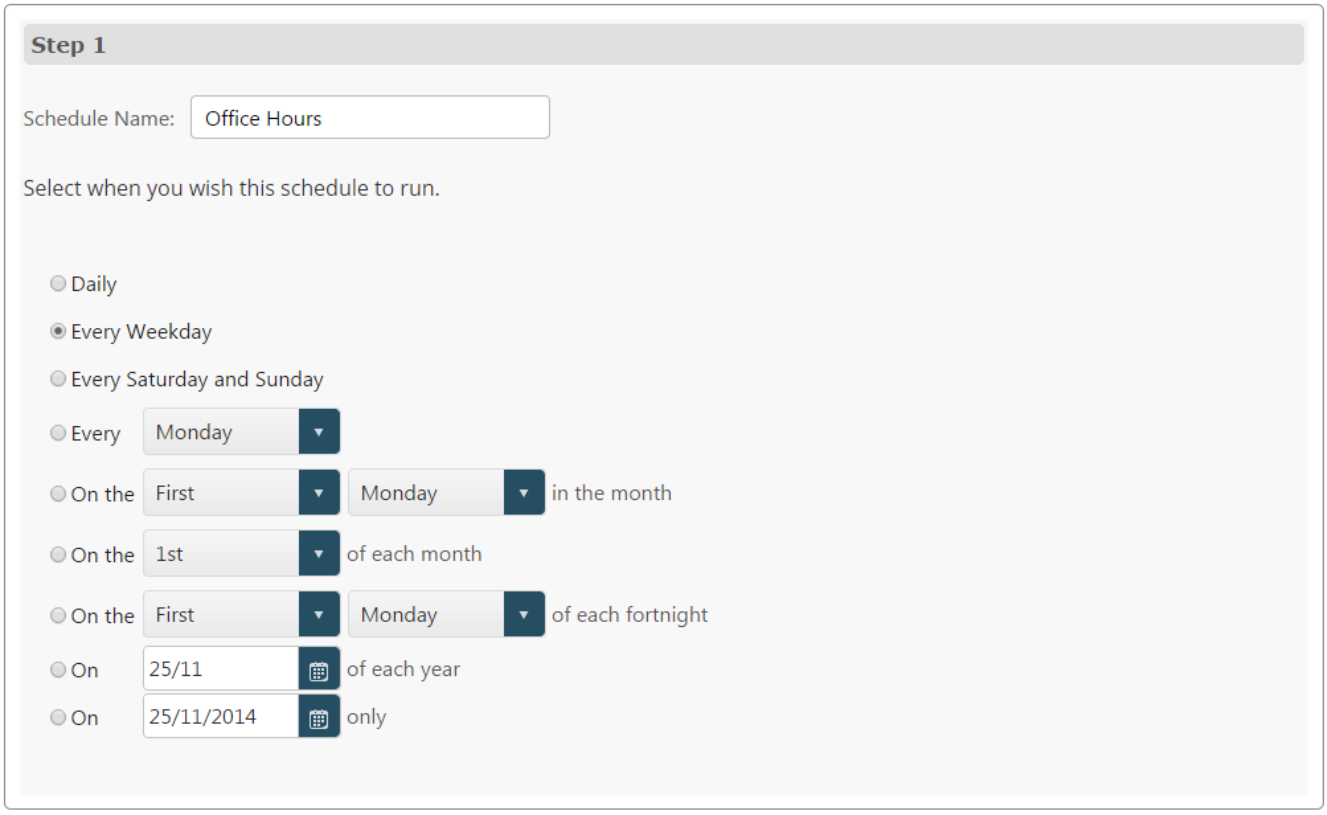
Schedule ▲	Time Zone	Daylight Saving	Used by servers	
On plan	Europe/Moscow	Outside of period	2 Servers	Edit Delete
ON Saturday 2:00-7:00	UTC	-	-	Edit Delete
On the 24 of each month	UTC	-	-	Edit Delete
On the fourth Friday	Europe/Moscow	Outside of period	CMM-TEST-SRV-4	Edit Delete
ON Weekdays	UTC	-	5 Servers	Edit Delete
ON Weekdays 3:00-18:00 UTC	UTC	-	CMM-TEST-SRV-2	Edit Delete
ON Weekdays 4:00-18:00 UTC	UTC	-	-	Edit Delete
ON Weekdays 5:00-20:00 UTC	UTC	-	CMM-TEST-SRV-1	Edit Delete
ON Weekdays 8:00-17:00 BST	Europe/London	DST compensation active	CMM-TEST-SRV-2	Edit Delete
ON Weekend BST	Europe/London	DST compensation active	-	Edit Delete

1 2 3 4 5 21 - 30 of 45 items

3. Click the **Add** button below the grid.
4. On Step 1, enter a name for the schedule (if you will be created lots of schedules, this should be something meaningful such as 'Office Hours' rather than just something generic like 'Schedule 1').

   Then configure which days you want the schedule to run on. Select the radio but for the option that you

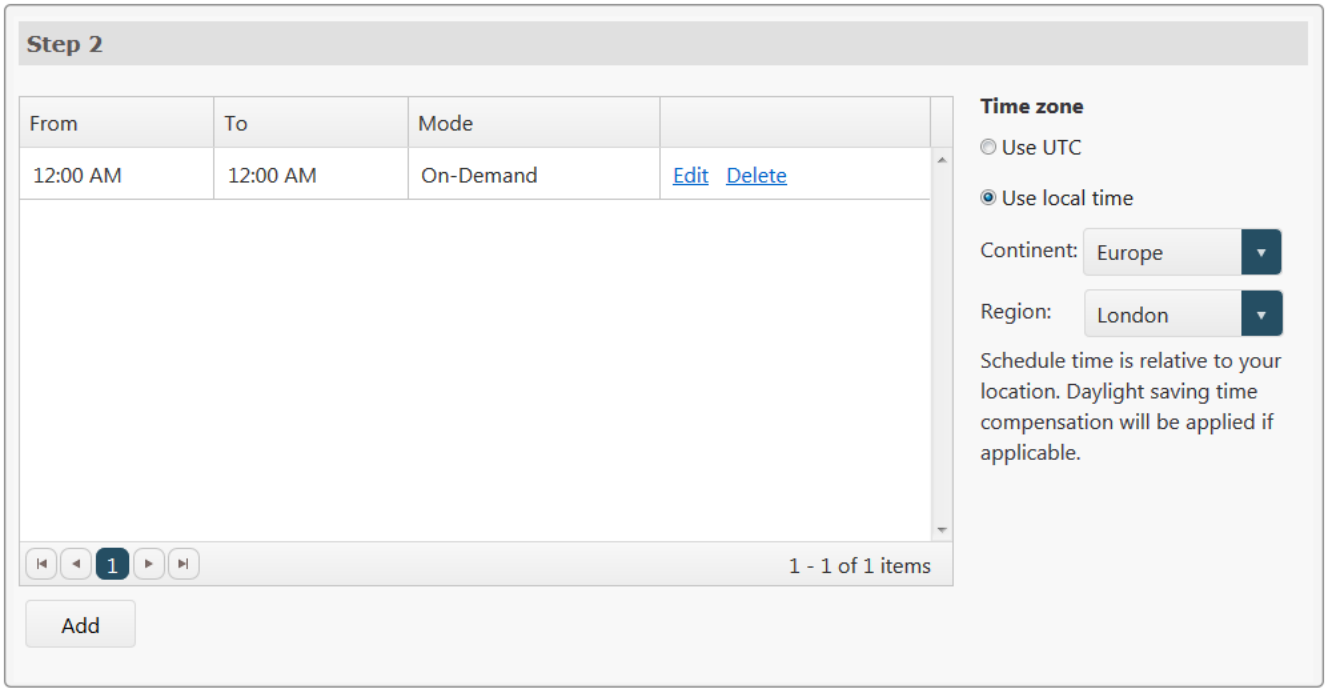
want to use and, where appropriate, use the drop down menus and date pickers to specify when you want that option to be run.



Click **Next**.

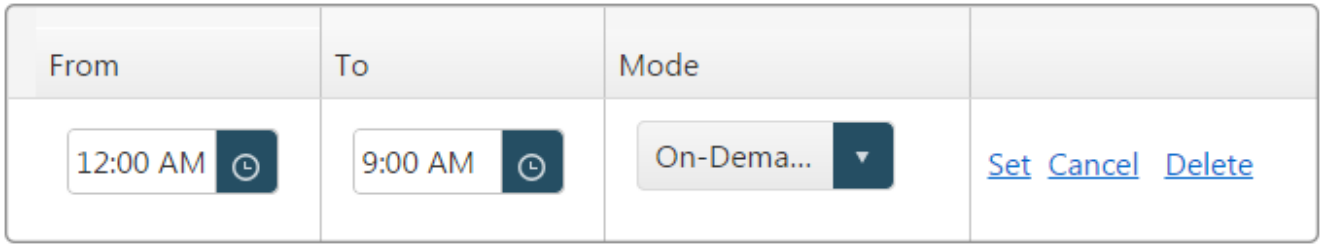
5. On Step 2, select whether you want the schedules to run according to UTC or your local time. If local time is selected, additional options will appear allowing you to select your continent and then region.

   If applicable, Daylight Saving Time automatically applies to any schedules using the **Use local time** option. Schedules that use the **Use UTC** option will not have Daylight Saving Time applied to them.



Then add the times that you want the server to turn on, turn off or be On Demand by clicking the **Add** button below the grid to add new events.

By default, a new event will run from 12:00 AM to 12:00 AM and be On Demand. Click the **Edit** link to update the **From** and **To** times and to change the type of event. When all changes have been made, click the **Set** link.

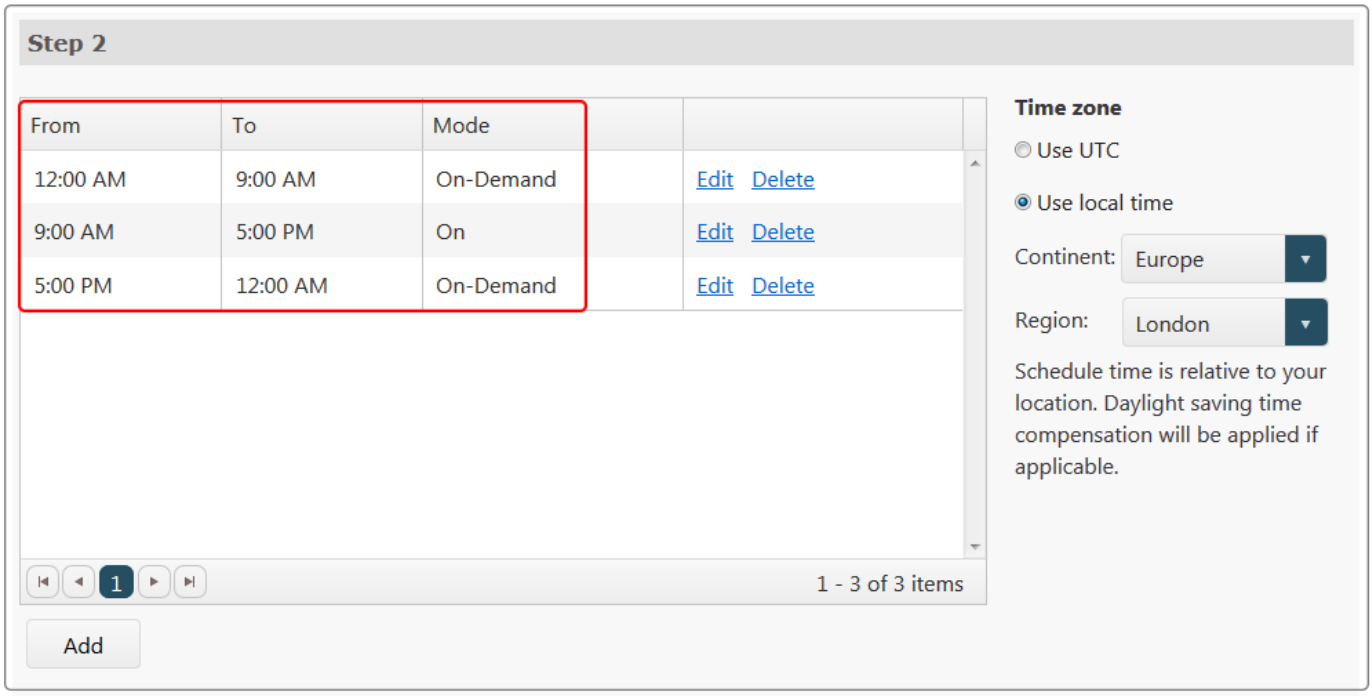


Click **Save**.

So for the earlier example of a server that should be on during office hours, it could be configured using the Every Weekday option on Step 1 and then have 3 events on Step 2:

- On Demand from 12:00 AM to 9:00AM
- On from 9:00AM to 5:00PM
- On Demand from 5:00PM to 12:00AM

This server would be on during the core office hours but would also be available On Demand before and after these hours for anyone who is starting early or working late.



Note – The times for 2 events cannot overlap. For example, if one event is 9:00AM to 5:00PM, another event cannot occur any earlier that 5:00PM. If you try to enter an earlier time for the second event, it will be rejected.

3.2. Managing Schedules

All existing schedules will be listed in the grid on the Manage Schedules screen.

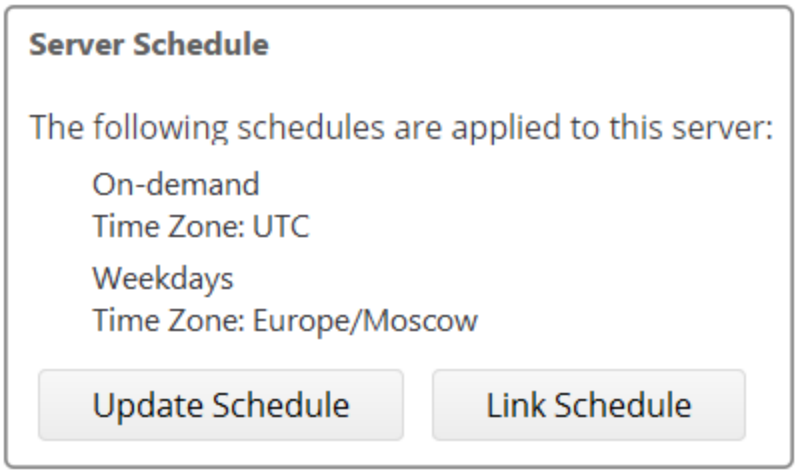
To update any of the schedules, cick the **Edit link** – this will walk the user through the same 2 step process as when the server was created.

The **Used by servers** column in the grid indicates which server is using a particular schedule. If a schedule is in use by more than one server, the number of servers using the schedule is displayed instead of a server name – clicking on this will open a popup window that lists the names of all of the servers.

3.3. Adding a Schedule to a managed server

Once the necessary schedules have been configured, they can be applied to a server.

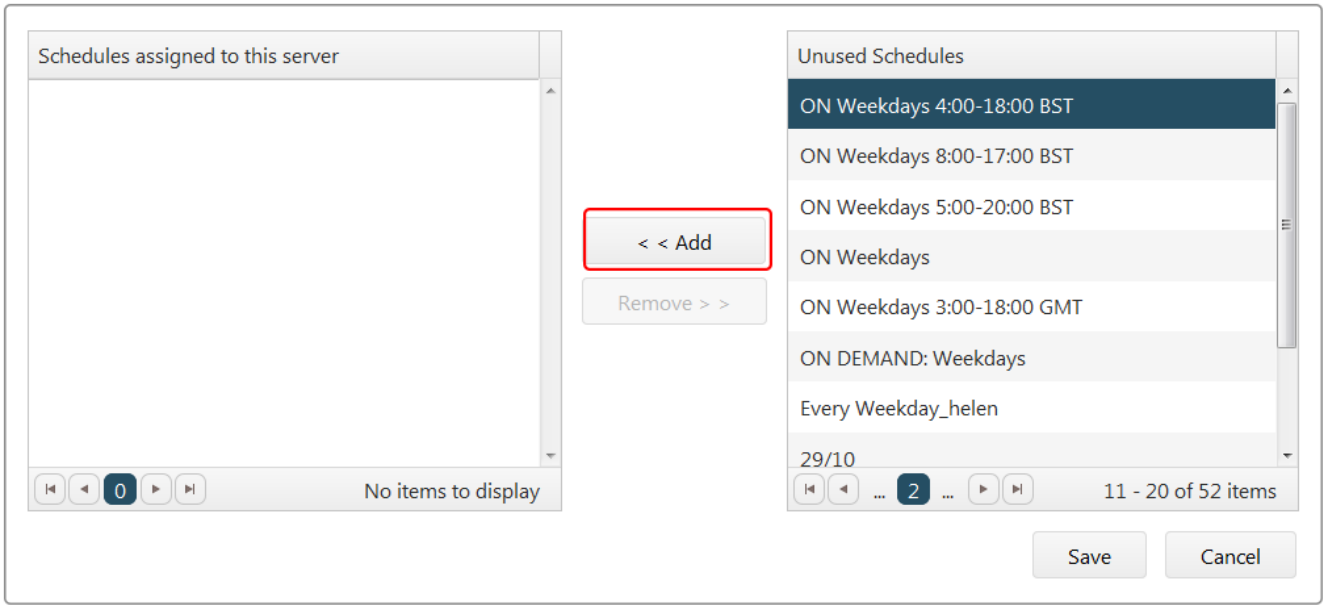
1. Log in to your CMM account.
2. On the Servers screen, click on the **Edit** button for the server that you want to add a schedule to – this will take you to the **Identity** tab of the Edit Server screen. Any schedules that have already been applied to the server will be listed under Server Schedule.



3. Click on the **Update Schedule** link – this will take your to the Update Schedules page.

   Note - The Update Schedule button will not be available if the server has been linked to another server (see Linked servers for more details). if you need to apply a schedule to a linked server, unlink the server first.

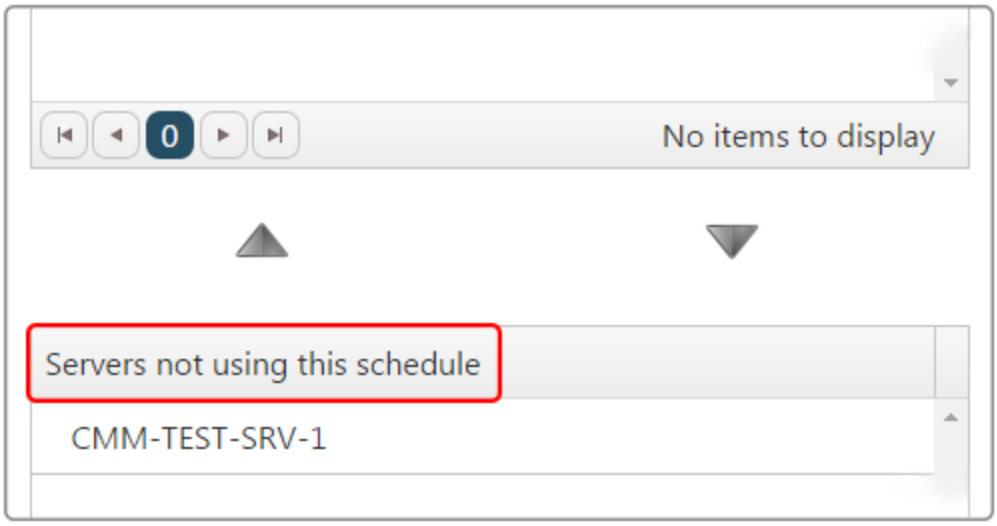
4. To apply a schedule to the server, select it in the **Unused Schedules** list and click the **Add** button to add it to the **Schedules assigned to this server** list.



5. Click **Save**.

Alternatively, you can update the schedules for multiple servers simultaneously:

1. Log in to your CMM account.
2. On the Servers screen, enable the checkboxes next to the servers that you want to update.
3. Click the **Update Schedule** button that becomes available below the Servers grid.
4. On the Update Schedules Page, select the schedule you need to apply. To add servers to the schedule, select a server in the **Servers not using this Schedule list** and clicking the  button to add to the **Servers using this schedule list**.



Or

Drag and drop the server from **Servers not using this Schedule** list to **Servers using this schedule** list.

Similarly, to remove a schedule from a server, select the server in the **Servers using this schedule** list and click the  button or drag the server name to the **Servers not using this Schedule list**.

5. Click **Save**.

Note - You do not have to perform the same action on all servers that are selected. For example, if you want to remove a schedule from one server and apply it to another, you can do it in one go - the applied server will appear in the **Servers using this schedule** list and the new server will appear in the **Servers not using this schedule** list, so just swap them around and click **Save**.

3.4. Viewing the Schedules applied to a server

To make it easier to review a server's schedules at a glance, a calendar view is included, which displays a month by month view of which schedules are applied to a server on each day of that month.

Mon	Tue	Wed	Thu	Fri	Sat	Sun
29 Office hours	30 Office hours	1 Office hours	2 Office hours	3 Office hours	4 On-demand	5 On-demand
6 Office hours	7 Office hours	8 Office hours	9 Office hours	10 Office hours	11 On-demand	12 On-demand
13 Office hours	14 Office hours	15 Office hours	16 Office hours	17 Office hours	18 On-demand	19 On-demand
20 Office hours	21 Office hours	22 Office hours	23 Office hours	24 Office hours	25 On-demand	26 On-demand
27 Office hours	28 Office hours	29 Office hours	30 Office hours	31 Office hours	1 On-demand	2 On-demand

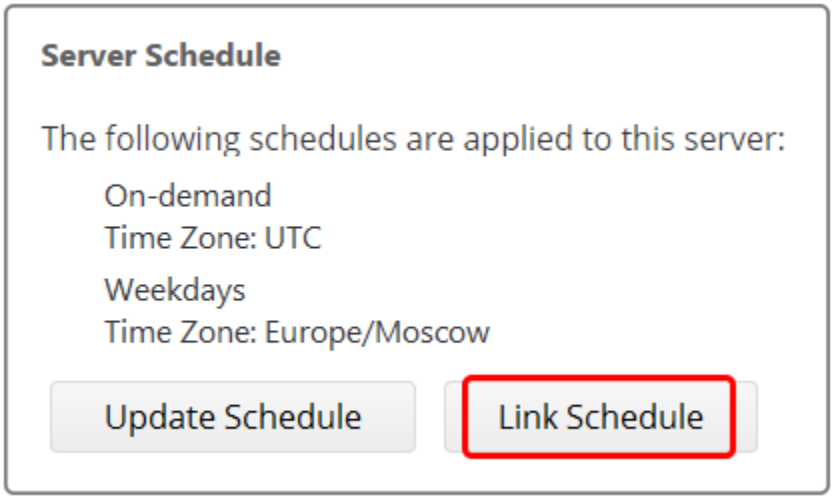
The schedule calendar can be viewed by doing the following:

1. Log in to your CMM account.
2. On the Servers screen, click on the **Schedule** button for the server that you want to review.

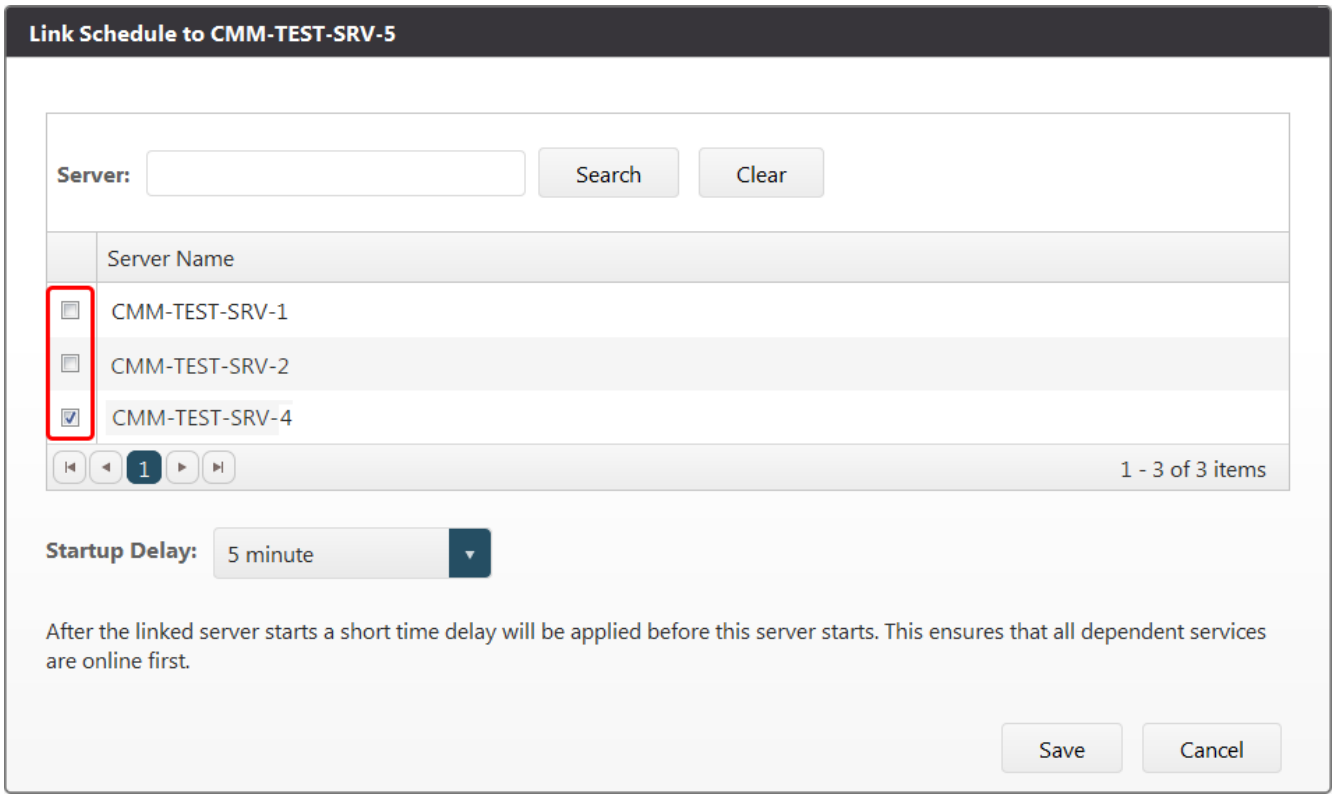
3.5. Linked servers

In some cases separate servers may be dependent on one another, with one unable to fully function when the other is not also running. In such cases, the servers can be linked - when the primary server is started, the second server will also be started (with an optional startup delay, if necessary).

1. Log in to your CMM account.
2. On the servers screen, click the **Edit** button for the server that you want to make dependent on another server - this will take you to the Identity tab of the Edit Server screen.



3. Click the **Link Schedule** button.
4. On the **Link Schedule to …** window, enable the checkbox next to the server that this server should be linked to (i.e. it will become dependent on).



5. If it is necessary to have a delay in the second server being started (for example, if the primary server needs to be fully initialized before the second server starts), select the relevant delay period from the **Startup Delay** drop down menu. If no delay is required, make sure that 'No delay' is selected.
6. Click **Save**. **Note** – Once a server has been linked to another server, schedules can no longer be added to it as it is now dependent on the server that it has been linked to.

4. On Demand

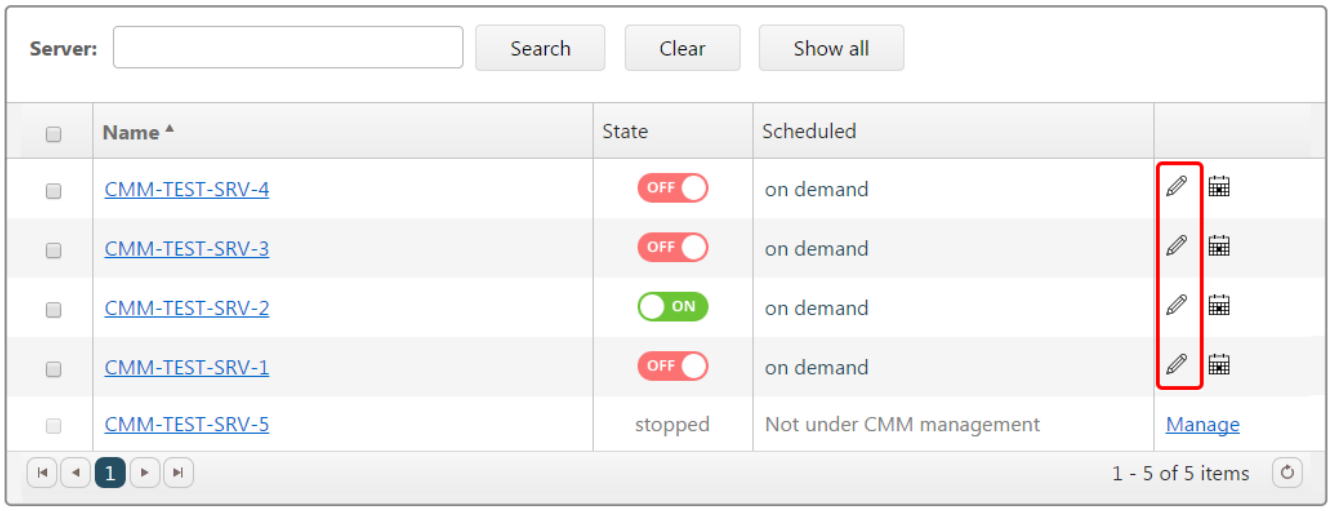
If your server hosts a website, the server can be turned on simply by browsing to the site using a URL in a browser.

CMM will monitor web requests to your server and display a waiting page when it is stopped. This waiting page will inform the visitor that the server is currently offline and then hold them there while it starts the server. When the server is running, the user is then forwarded to the webpage that they original tried to browse to.

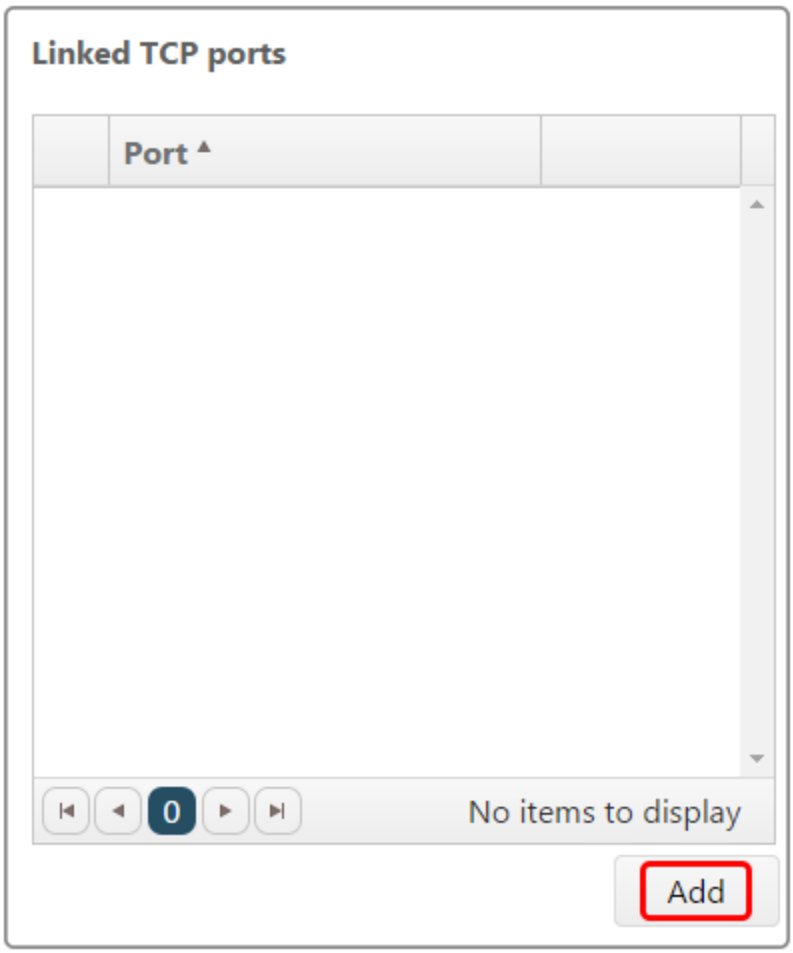
4.1. Configuring a server to be On Demand

To allow On Demand access, a domain name needs to be linked to the server. Users can then turn on the server by browsing to any page on the domain in their web browser.

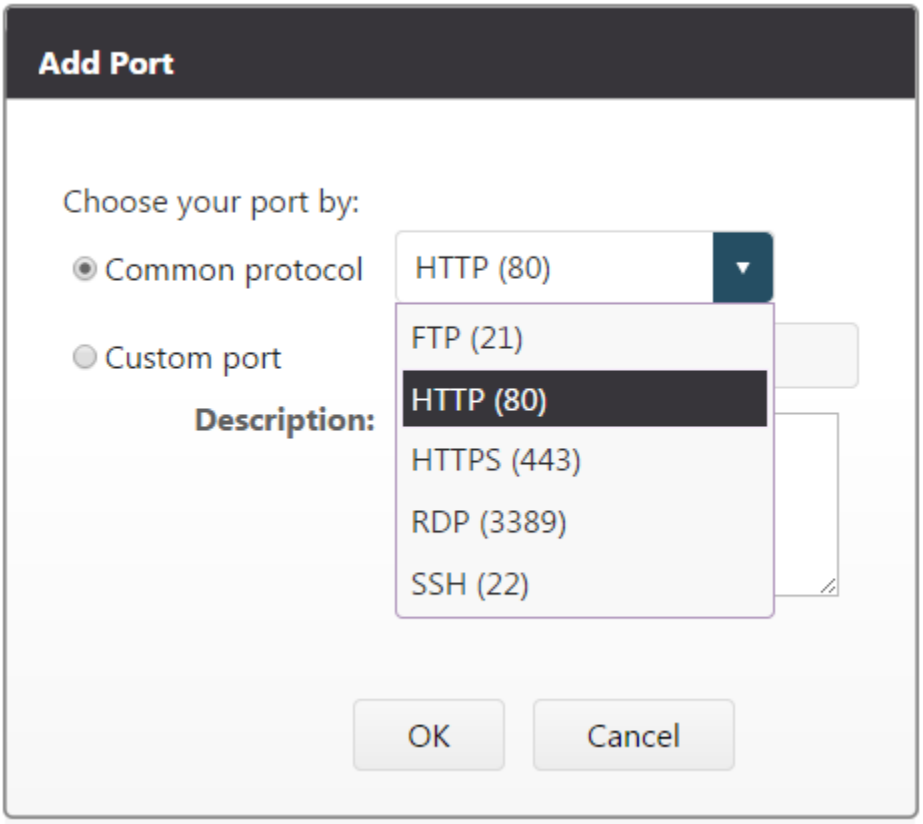
1. Log in to your CMM account.
2. On the Servers screen, click on the **Edit** button for the server that you wish to make On Demand – this will take you to the **Identity** tab of the Edit Server screen.



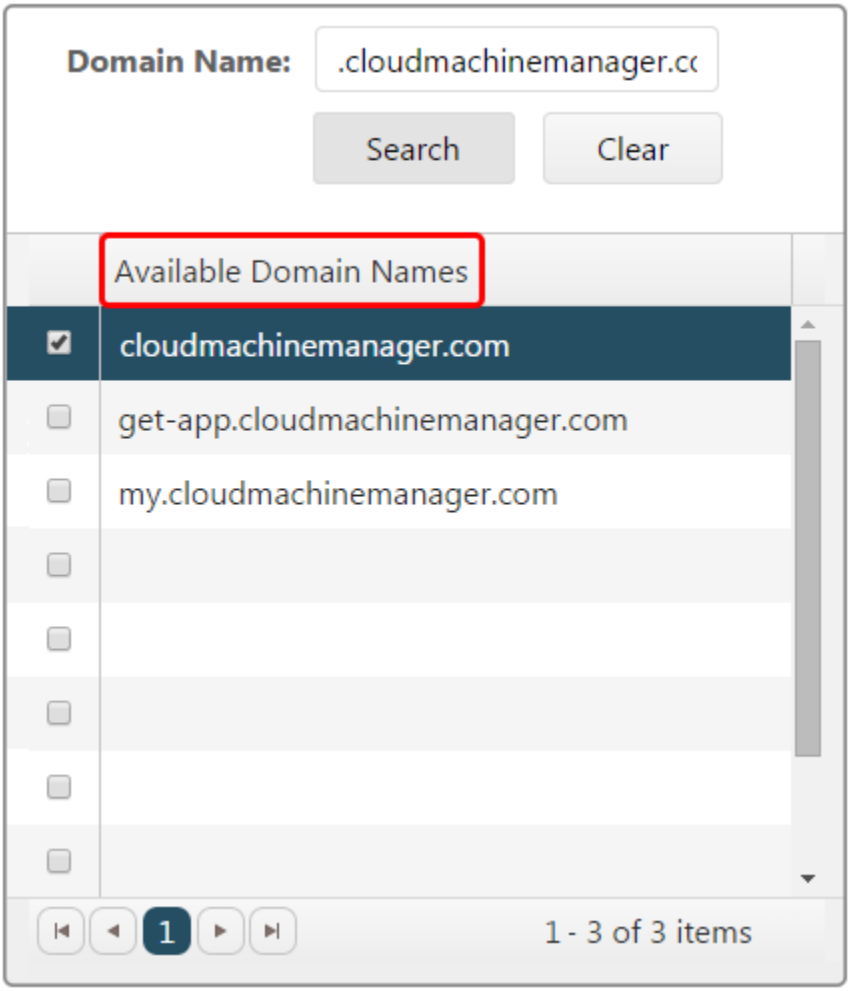
3. Under **Linked TCP ports**, click the **Add** button below the empty list.



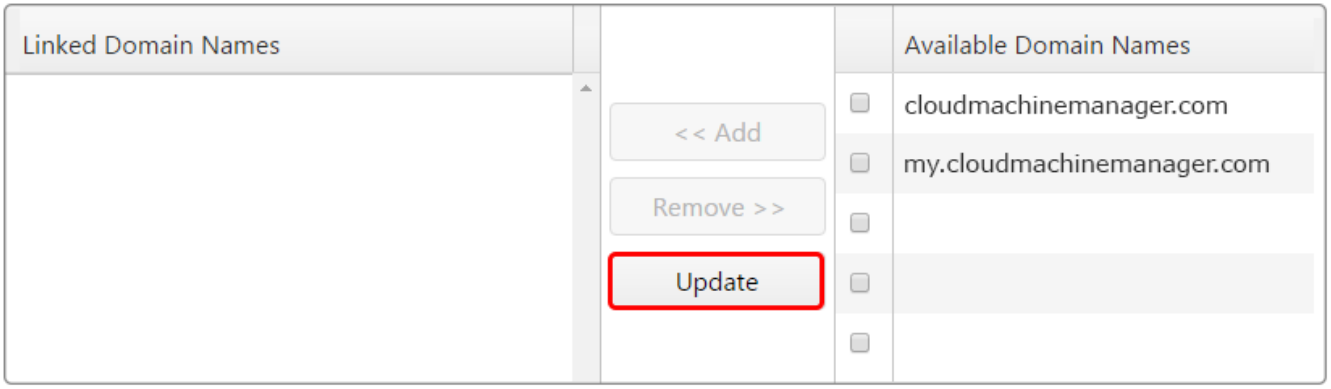
4. In the Common Protocol drop down menu select **HTTP (80)** and click **OK**.



5. Find and check the domain names that should be linked to the server in the **Available Doman Names** list.



6. Click the **Add** button to transfer the checked domain names to **Linked Domain Names** list.



7. Click **Save**.

Note – If any changes have been made to your domain names and the changes have not appeared in the Available Domain Names list, click the **Update** button to refresh the list.

4.2. Removing a server from On Demand

If you no longer want a server to respond to On Demand web requests but you still want it to be managed by CMM, simply assign a schedule to this server (see Adding a Schedule to a managed server for more details).

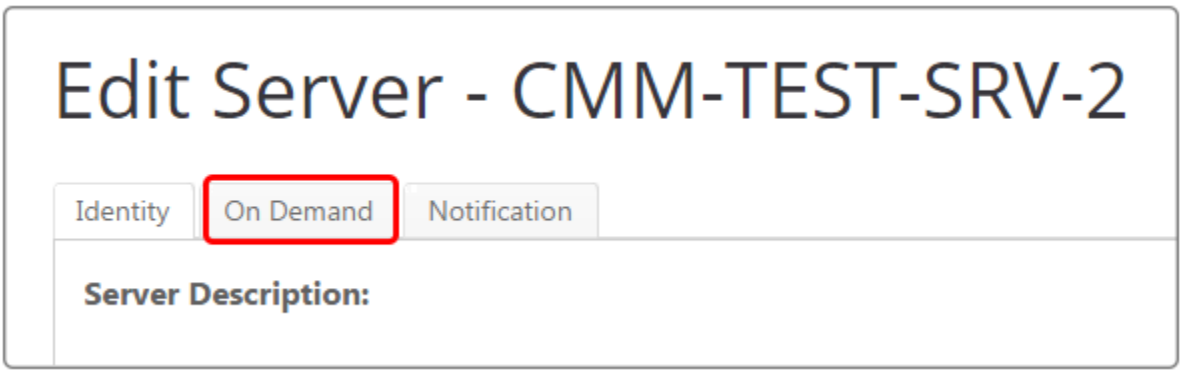
5. Start Page

In some cases, browsers won't notice if the server associated with a domain name changes - in this case, when CMM attempts to redirect the user to the target server page, the redirect doesn't work. If you set up a start page URL, you can give this to your end users and they can use it to make sure the server is started.

5.1. Specifying a dedicated waiting page

This simply involves specifying a prefix that will be added before the domain name, as follows:

1. On the Servers screen, click on the **Edit** button for the On Demand server – this will take you to the **Identity** tab of the Edit Server screen.
2. Navigate to the **On Demand** tab on the Edit Server screen.



3. Enable the **Enable the website waiting page at** option and enter the prefix in the text box that follows immediately. This prefix will be added at the beginning of the domain names that have been specified in the **Linked Domain Names** list on the **Identity** tab.

Note – the prefix should not include a trailing dot or the domain name.

4. Click **Save**.

For example, if the linked domain name for a server is **cloudmachinemanager.com** and the prefix is set as start, a user can browse directly to **start.cloudmachinemanager.com** to turn the server on.

However, even if the **Enable the website waiting page at** option is enabled, the user can still browse directly to any page on the cloudmachinemanager.com domain (that they have permission to visit) to turn the server on.

5.2. Wait for Fully Running

The server state is not updated to Running as soon as it is turned on and accessible – there may be other processes that Amazon is waiting on before it truly considers the server to be completely ready and updates the state to Running.

If the Wait for Fully Running option is enabled for an On Demand server, any user who turns on the server via a web request will be held on the waiting page until the server state in Amazon has updated to Running.

If this option is not enabled, the user will be forwarded to their destination web page as soon as there is a response from the server, irrespective of what the server state is on Amazon – the state may have updated to Running or it may still be Pending.

To enable the Wait for Fully Running option:

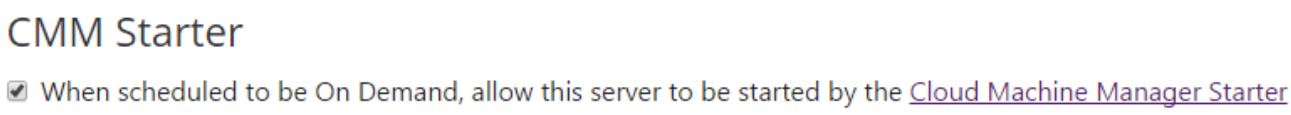
1. On the Servers screen, click on the **Edit** button for the On Demand server – this will take you to the **Identity** tab of the Edit Server screen.
2. Navigate to the **On Demand** tab on the Edit Server screen.
3. Enable the **Wait for Fully** Running option.
4. Click **Save**.

6. CMM Starter

The CMM Starter application allows you to start servers when you need them and stop them afterwards. It also provides remote access to your server by launching the appropriate client program.

To allow a server to be controlled using the CMM Starter application, do the following:

1. On the Servers screen, click on the **Edit** button for the On Demand server – this will take you to the **Identity** tab of the Edit Server screen.
2. Navigate to the **On Demand** tab on the Edit Server screen.
3. Ensure that the "**When scheduled to be On Demand, allow this server to be started by the Cloud Machine Manager Starter**" option is enabled (by default, it should be enabled).



4. If any changes have been made, click **Save**.

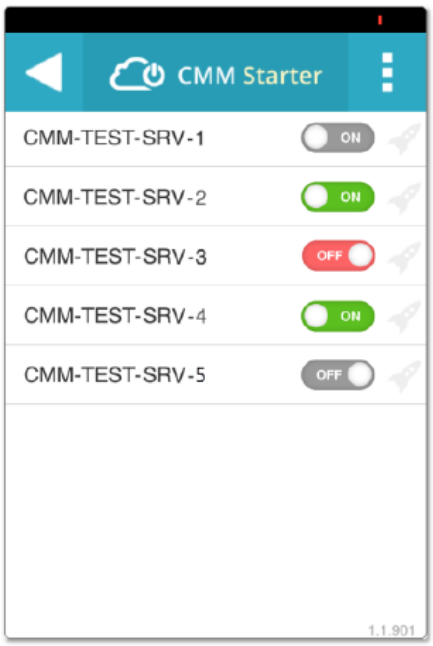
6.1. Setting up the CMM Starter application

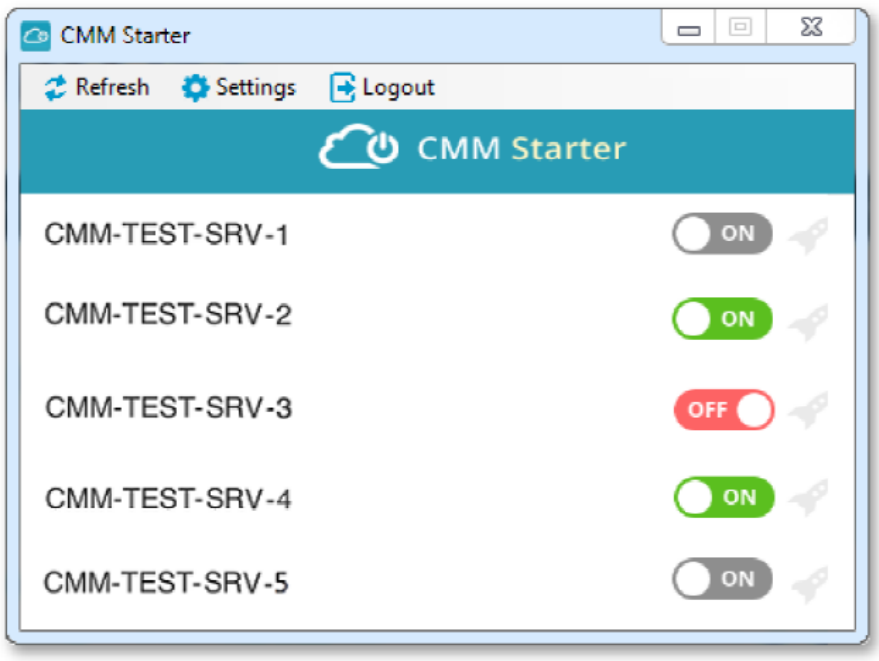
CMM Starter is available for Windows, Android, Apple iOS and Windows Phone.

1. Visit https://my.cloudmachinemanager.com/CMM/CMMStarter.aspx and download the CMM Starter app for the platform of your choice.
2. Install the CMM Starter app and then log in using your usual CMM login credentials.

The CMM Starter app will display the same list of servers that is present on your Servers screen when logged into http://my.cloudmachinemanager.com.

The mobile and desktop versions look like this:





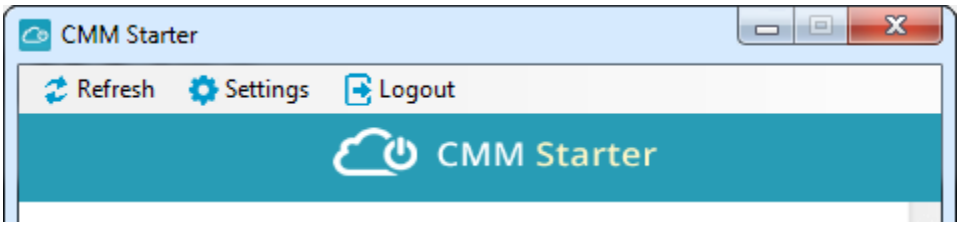
You can turn the servers on and off using the On / Off button exactly like on http://my.cloudmachinemanager.com, but the Launch button can also be configured to quickly and easily launch a server client program, such as Remote Desktop Connection, to access the server.

6.2. Using a server client program

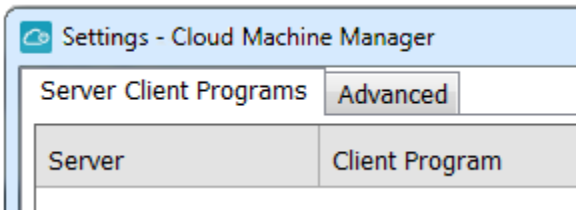
The Windows CMM Starter application allows you to configure a server client program that can be quickly launched to access a server.

To do this, first configure a server client program:

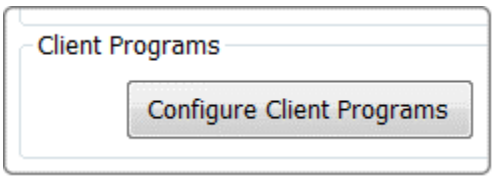
1. Launch the CMM Starter application.
2. Click **Settings**.



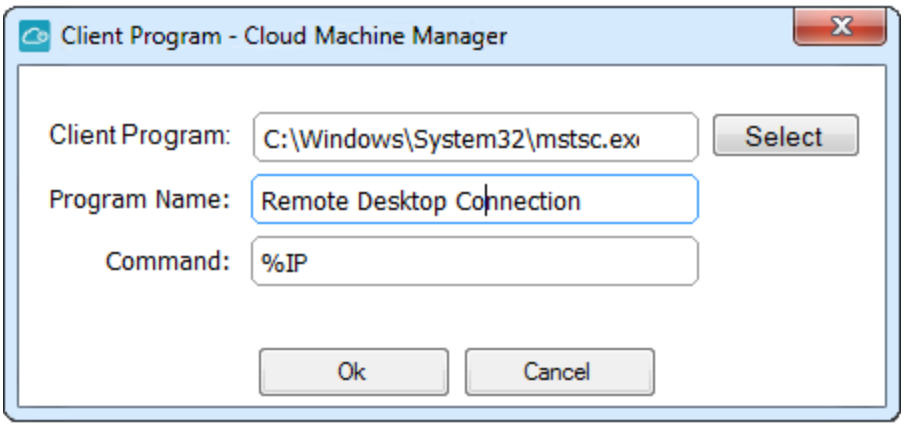
3. Go to the **Advanced** tab.



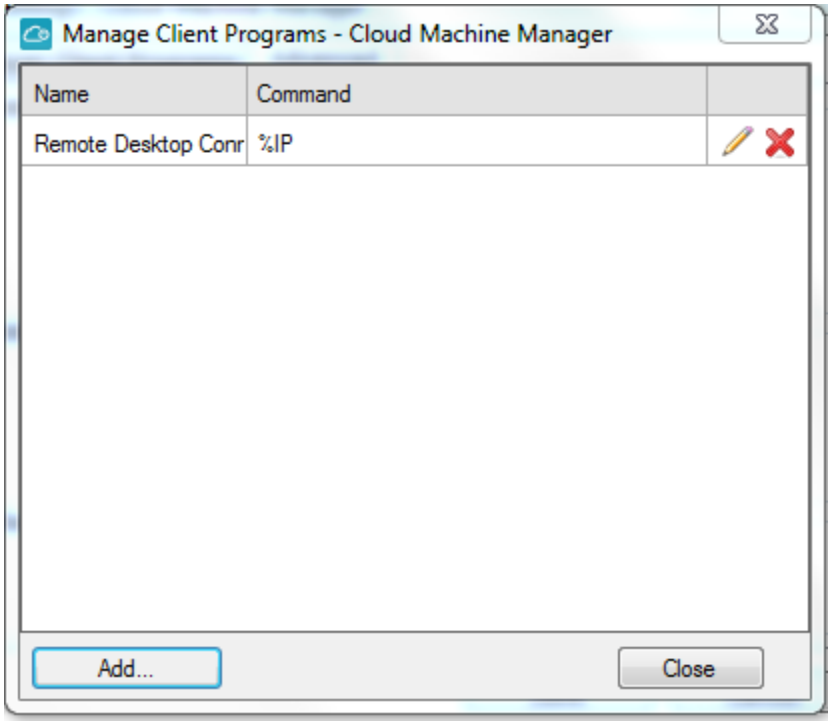
4. Click **Configure Client Programs**.



5. Click **Add…**
6. Click **Select** and then use the file selector to select the executable for a server client program and click **OK**.
7. Enter a name for the server client program (this will be the option that you selected from a drop down menu later) and click **OK**.

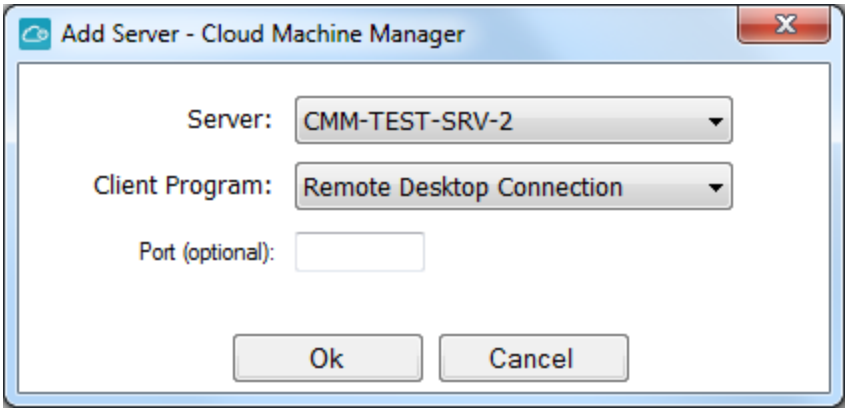


The client program should now have been added to the Manage Client Programs list.

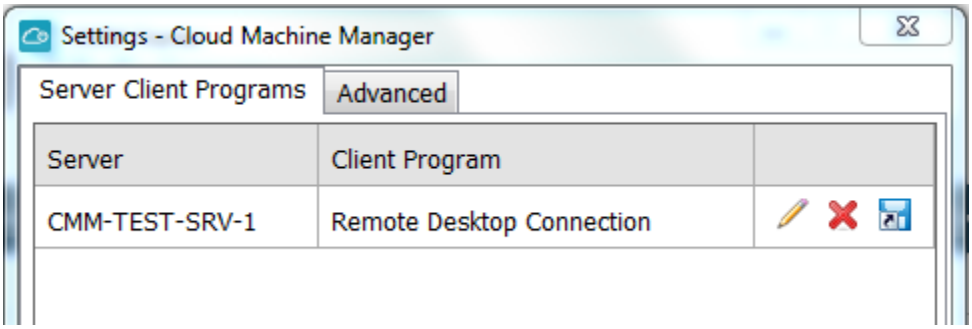


To add the server client program to a server:

1. Launch the CMM Starter application.
2. Click **Settings** – this will take you to the Server Client Programs tab of the Settings menu.
3. Click **Add…**
4. Select the server that you want to access using a server client program from the **Server** drop down menu and the **Client Program** that you want to use from the drop down below – this will be the Program Name that was entered when configuring the server client program. If necessary enter a **Port** number.

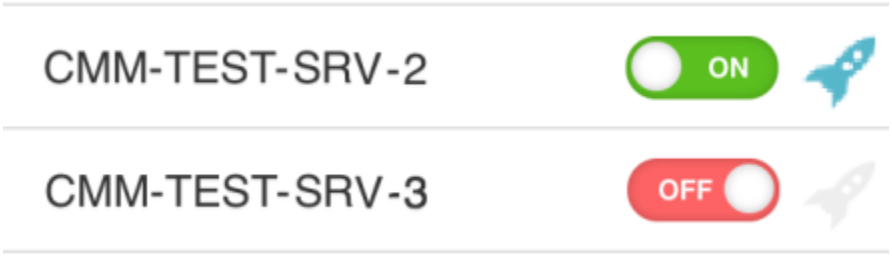


5. Click **OK**.
6. Optionally, click the button to save a desktop shortcut to launch the server client direct from the desktop and connect to the server without having to open the CMM Starter application.



7. Click **Save**.

The server can now be accessed by clicking the rocket icon next to the server's on / off button on the CMM Starter main window.



Clicking this will launch the server client program and connect it to the server.

7. Utilization Monitoring

CMM can monitor your server's utilization and, if it falls below defined thresholds for a particular period, stop the server.

There are 2 usages that are monitored to determine if the server is still in use:

- **CPU usage** – When the average CPU for a set period falls below the specified threshold, the server will turn off.
- **Network usage** – When the total network usage for a set period falls below the specified threshold, the server will turn off.

The threshold values and the period that the usage must fall below the threshold for can both be configured.

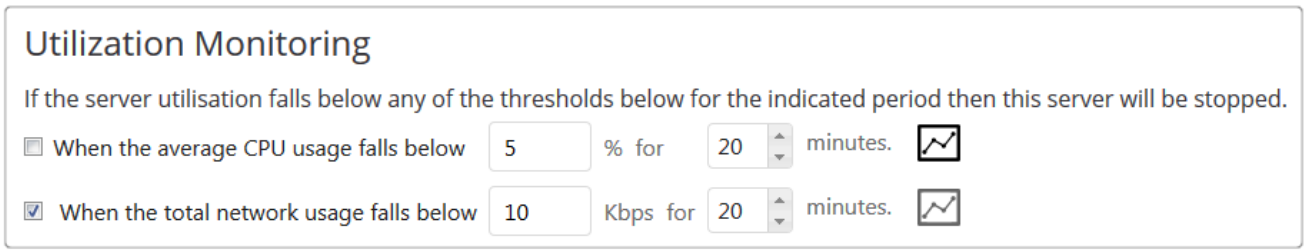
Utilization monitoring can be applied to both of these at the same time, just one or neither (the periods can be independently set for both settings).

Note – If CPU usage and Network usage are both monitored, usage must fall below the threshold for both in order for the server to be stopped.

7.1. Configuring utilization monitoring

To setup monitoring:

1. On the Servers screen, click on the Edit button for the On Demand server – this will take you to the **Identity** tab of the Edit Server screen.
2. Navigate to the **On Demand** tab on the Edit Server screen.
3. Enable the checkbox next to the usage(s) that you wish to monitor. Enter a value for the threshold in the free text box and then enter a period in the minutes number box (or use the arrow buttons to increase / decrease the period in 5 minute increments).



4. Click **Save**.

7.2. Checking utilization

When configuring utilization monitoring, it is possible to review graphs of the utilization of that server during the previous 2 hours:

1. On the Servers screen, click on the **Edit** button for the On Demand server – this will take you to the **Identity** tab of the Edit Server screen.
2. Navigate to the **On Demand** tab on the Edit Server screen.
3. Click on the  icon next to either the CPU usage option or the network usage option.

8. Deferred Shutdown

Normally, when CMM detects that an On Demand server is not being used, it will turn the server off. However, there may be instances where a server appears unused but there is actually still a requirement for it to be on. In such situations, instead of disabling On Demand altogether, it may be preferable to enable deferred shutdown instead.

A server that has deferred shutdown enabled behaves exactly like any other On Demand server, except for one difference – CMM will not turn off the server as soon as it believes that it is no longer being used. Instead, users of that server receive emails explaining that the server will turn off after a pre-defined period of time.

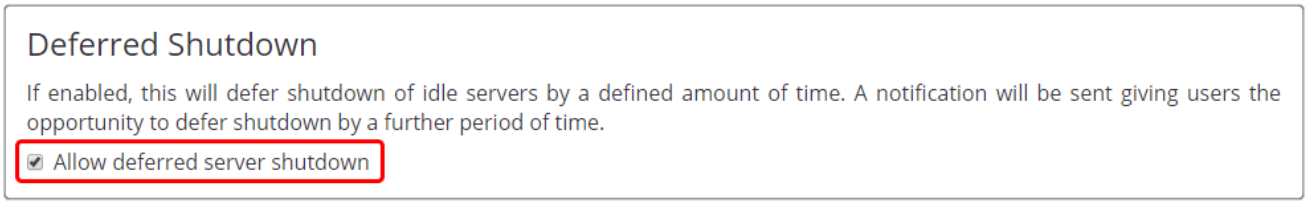
Should any of the users wish to keep the server on, they simply click a link in the email and they will be taken to a screen on the CMM website. From here, the user can see how long is left until the server will be turned off and they can choose to delay this by up 24 hrs (depending on what maximum has been set in the Account Details).

In other words, the server will be shut down after a set period of time unless a CMM user intervenes.

8.1. Enabling Deferred Shutdown

To enable the Deferred Shutdown option:

1. On the Servers screen, click on the **Edit** button for the On Demand server – this will take you to the **Identity** tab of the Edit Server screen.
2. Navigate to the **On Demand** tab on the Edit Server screen.
3. Enable the **Allow deferred server shutdown** option.



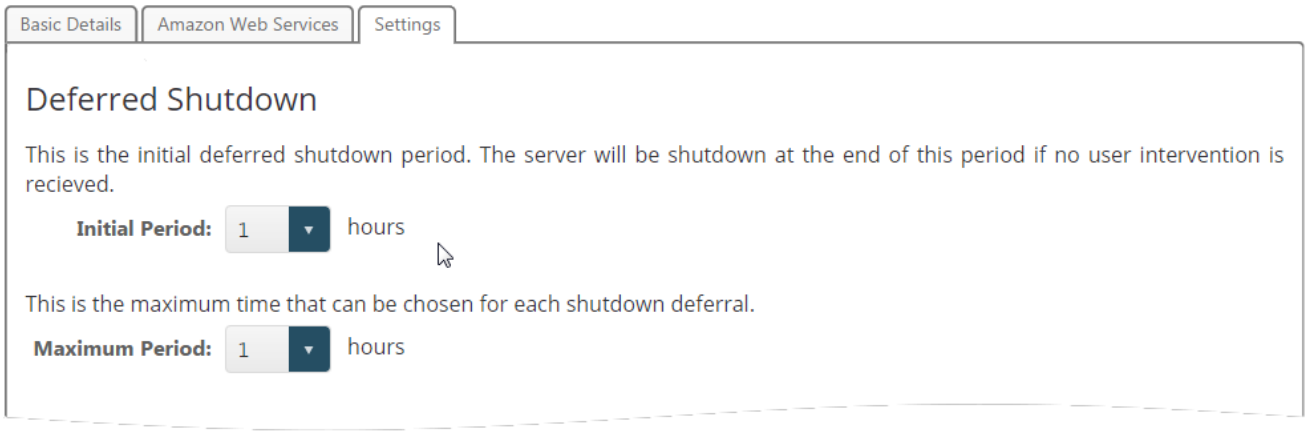
4. Click **Save**.

After that, you can configure the delay between the notification emails being sent and the server turning off as well as the maximum amount of time that a user can defer the server being turned off.

To configure these:

(**Note** – this is only accessible to users with the Account Administrator role)

1. Go to the **ADMIN** menu and select **MANAGE ACCOUNT** – this will take you to the Basic Details tab of the Manage Account screen.
2. Navigate to the **Settings** tab.
3. Use the drop down menus to set the **Initial Period** (how long the server waits to turn off after notification emails are sent) and the **Maximum Period** (the maximum length of time that a user can defer shutdown for).



Note – By default, both of these will be set to 1 hr.

4. Click **Save**.

8.2. Deferring a server shutdown

When an On Demand server that has deferred shutdown enabled falls below the utilization thresholds that would normally result in the server turning off, users will receive notification emails warning them that the server will turn off in a certain amount of time if they do not take any action.

To defer the server shutdown:

1. Click the link that is provided in the notification email – this will take the user to a special page on the CMM website.
2. Select the **Defer Shutdown** time from the drop down menu.
3. Click **OK**.

Note – A new period of deferred time begins immediately and does not include any time remaining on the timer from when the notification email was sent.

9. Notifications

CMM can be configured to send email notifications when certain events occur. These emails can be sent to either all users who can manage that particular server or to a single, specified individual.

9.1. Notification events

There are 5 events that can be configured to send notification emails:

- **State change due to schedule** – If enabled, a notification is sent whenever the server turns on or off due to a Schedule that has been applied to the server.
- **State change due to user request via on-demand** - If enabled, a notification is sent whenever the server turns on or off due to a web request when a user tries to access the server's URL via their browser or when a user attempts to access the server using a server client.
- **State change due to user request via Cloud Machine Manager** - If enabled, a notification is sent whenever the server turns on or off due to a user toggling the **On / Off** button on the Servers screen.
- **State change from outside of Cloud Machine Manager control** - If enabled, a notification is sent whenever the server turns on or off outside of CMM's control. The most likely cause is that someone has made a manual change via the Amazon console.
- **Deferred shutdown notifications** – If enabled, notifications will be sent when a server that has deferred shutdown enabled is no longer in use. These emails allow users to delay the shutdown of that server beyond a pre-defined period. This option will automatically be enabled when deferred shutdown is enabled for that server.

9.2. Notification email recipients

Notifications can be sent to one of the following:

- **All users who have management permission on this server** – If this option is enabled, any users who belong to a group that is managing that server, will receive notifications when the state of that server changes.

  The specific users who receive the notifications will be determined by which groups the server has been added to on the Manage Groups screen and which users are members of those groups.

- **A specific user** – If this option is enabled, only a single user will receive notifications when the state of the server changes.

  The recipient is selected from the drop down menu provided. Any user who is a member of a group to which the server is assigned will be available in the drop down menu.

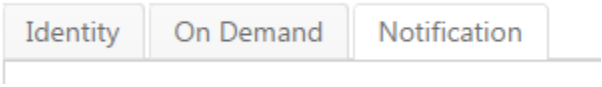
Note – The recipients of deferred shutdown notifications are not determined by the above.

9.3. Configuring email notifications

To enable / disable email notifications, you must:

1. On the Servers screen, click on the **Edit** button  for the On Demand server that you wish enable / disable email notifications for.

2. Navigate to the **Notification** tab on the Edit Server screen.



3. In the **Send email on Notification Event** section, enable the checkboxes next to the events that you wish notifications to be sent for.

   Note – The Deferred shutdown notifications checkbox will only be active if the **Allow deferred server shutdown** option has been enabled on the **On Demand** tab.

4. In the **Notification Email** section, use the radio buttons to determine who will receive the notifications. If **Send notice to this user** is selected, choose a user from the drop down menu underneath it.
5. Click **Save**.

10. Account

For Account Administrators only

An account is created when you start using CMM and contains all of your servers and users.

10.1. Account basic details

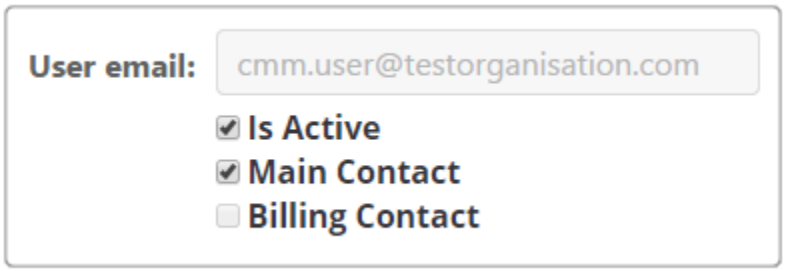
An account's basic details consist of the name of the account, the account's main contact with Blueberry Software and the account's billing contact. To update any of these:

1. Log in to your CMM account.
2. Go to the **ADMIN** menu and select **MANAGE ACCOUNT** – this will take you to the **Basic Details** tab of the Manage Account screen.
3. The **Main contact name** and **Billing contact name** drop down menus contain a list of all users who have registered with the account – select a user from each of these drop down menus to make them a contact.

   If the billing address is the same as the main contact address, enable the Use Main Contact details option to duplicate the address.

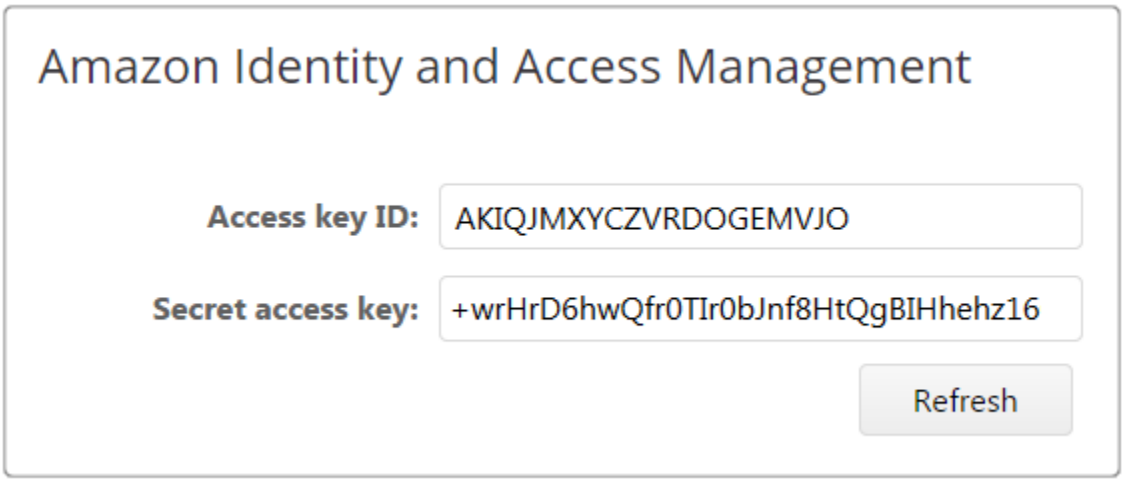
4. Click **Save**.

When the main contact and billing contact are set, the Main Contact and Billing Contact options will automatically become enabled on the assigned user's basic details page like below (see Changing a user's basic details for more details):



10.2. Amazon account details

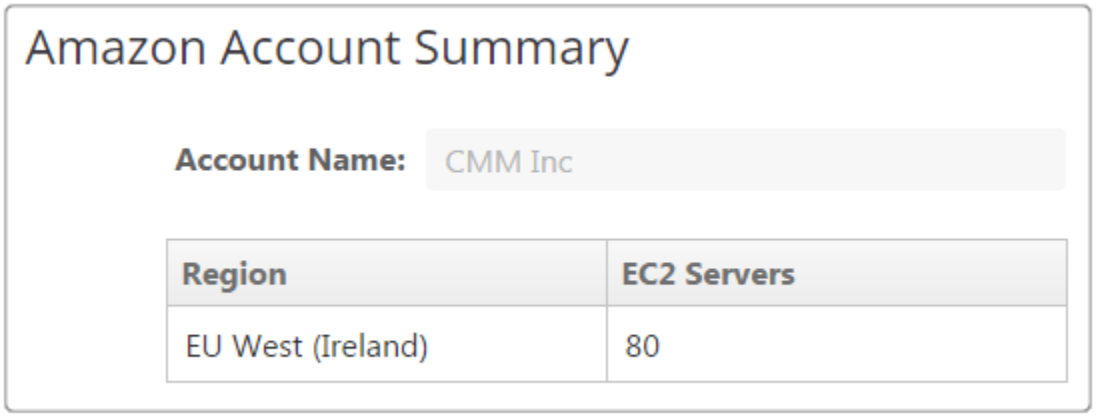
The Amazon account details are required for CMM to be able to manage your Amazon servers. The **Amazon key ID** and **Secret access key** are generated in **Identity and Access Management** in Amazon Web Services (see Creating a new AWS user for more details).



To view or update these details, do the following:

1. Log in to your CMM account.
2. Go to the **ADMIN** menu and select **MANAGE ACCOUNT** – this will take you to the Basic Details tab of the Manage Account screen.
3. Go to the **Amazon Web Services** tab.

To view a summary of the number of servers in your Amazon account and which region they are located in, click the **Refresh** button.



10.3. Closing a Cloud Machine Manager account

A CMM account can be closed by doing the following:

1. Log in to your CMM account.
2. Go to the **ADMIN** menu and select **MANAGE ACCOUNT** – this will take you to the Basic Details tab of the

Manage Account screen.

3. Go to the **Amazon Web Services** tab.
4. Click the **Close Account** button.
5. Click **Yes** on the confirmation popup that appears.

10.4. Deferred Shutdown

If deferred shutdown has been enabled for any servers in an account, you can set the initial period that shutdown is deferred for while it awaits user intervention and the maximum time that a user can defer shutdown by:

1. Log in to your CMM account.
2. Go to the **ADMIN** menu and select **MANAGE ACCOUNT** – this will take you to the Basic Details tab of the Manage Account screen.
3. Go to the **Settings** tab.
4. Select the desired times in the **Initial Period** and **Maximum Period** drop down menus.
5. Click **Save**.

11. Users

For Account Administrators only

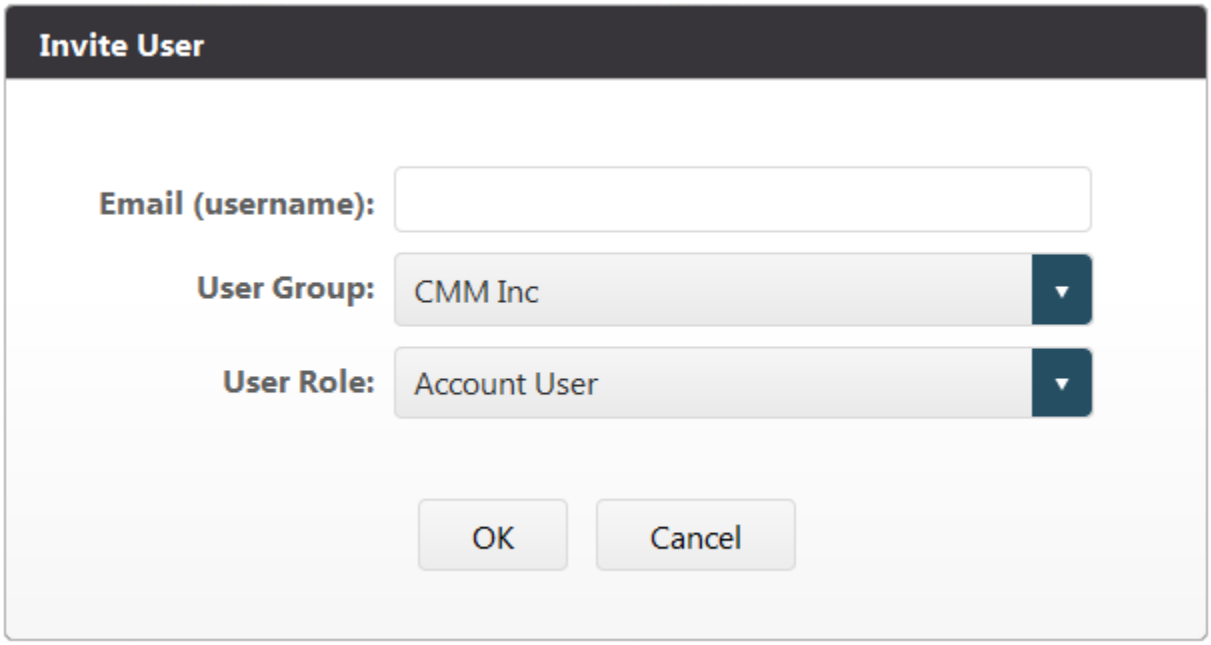
Anyone who needs access to a server can be added as a user. This allows them to log into CMM and manage servers from the Servers screen.

The particular servers that they can manage will be determined by which groups they are a member of, so they will only see servers that are relevant to them.

11.1. Inviting a new user

To add a new user to your account, they must accept an invitation. Invitations are sent by doing the following:

1. Log in to your CMM account.
2. Go to the **ADMIN** menu and select **MANAGE USERS** – this will take you to the Manage Users page where all existing users are listed in the grid.
3. Click the **Add** button below the grid.
4. Enter the new user's email address and assign them to a group – this will send an invitation email to that user.



When the new user receives the invitation email, they simply have to click the Accept link in the email and they can then complete their registration by entering the additional details needed to finalize their account (such as their full name and a password for their account).

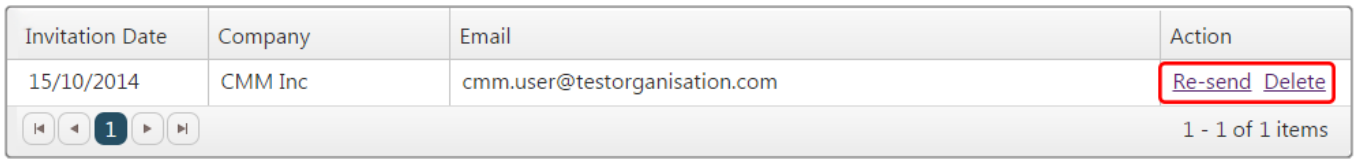
Once the user is fully registered, an Account Administrator can then assign them to additional groups as necessary.

11.2. Managing invitations

Outstanding invitations that have yet to be accepted can be reviewed by doing the following:

1. Log in to your CMM account.
2. Go to the **ADMIN** menu and select **MANAGE INVITATIONS** - this will take you to the Manage Pending Invitations page, where all invitations that have been sent but are yet to be accepted are listed in the grid.

Click on the **Re-send** link to resend a pending invitation or the **Delete** link to delete it.



11.3. Changing a user's basic details

To review and update a user's details:

1. Log in to your CMM account.
2. Go to the ADMIN menu and select MANAGE USERS – this will take you to the Manage Users page where all existing users are listed in the grid.
3. Click on the Edit link for the user account that you want to edit – this will take you to the Basic Details for that user.

The details available on the **Basic Details** tab are:

- **User name** – The user's first name. This is not editable while the user's account is active.
- **User surname** - The user's surname. This is not editable while the user's account is active.
- **User email address** – The user's email address. This is not editable while the user's account is active.
- **Is Active** – Enabled by default when a user account is created. This must be enabled for the user to use their account but disabled to edit most details (see Locking a user account for more details).
- **Main Contact** - This is only checked for your account's main contact with Blueberry Software. This is not editable here – it is automatically assigned based on the account details.
- **Billing Contact** - This is only checked for the user in your account on is responsible for billing. This is not editable here – it is automatically assigned based on the account details.

Also, a password reset email can be sent to the user by clicking the **Send password reset email to user** button.

11.4. Changing a user's permissions

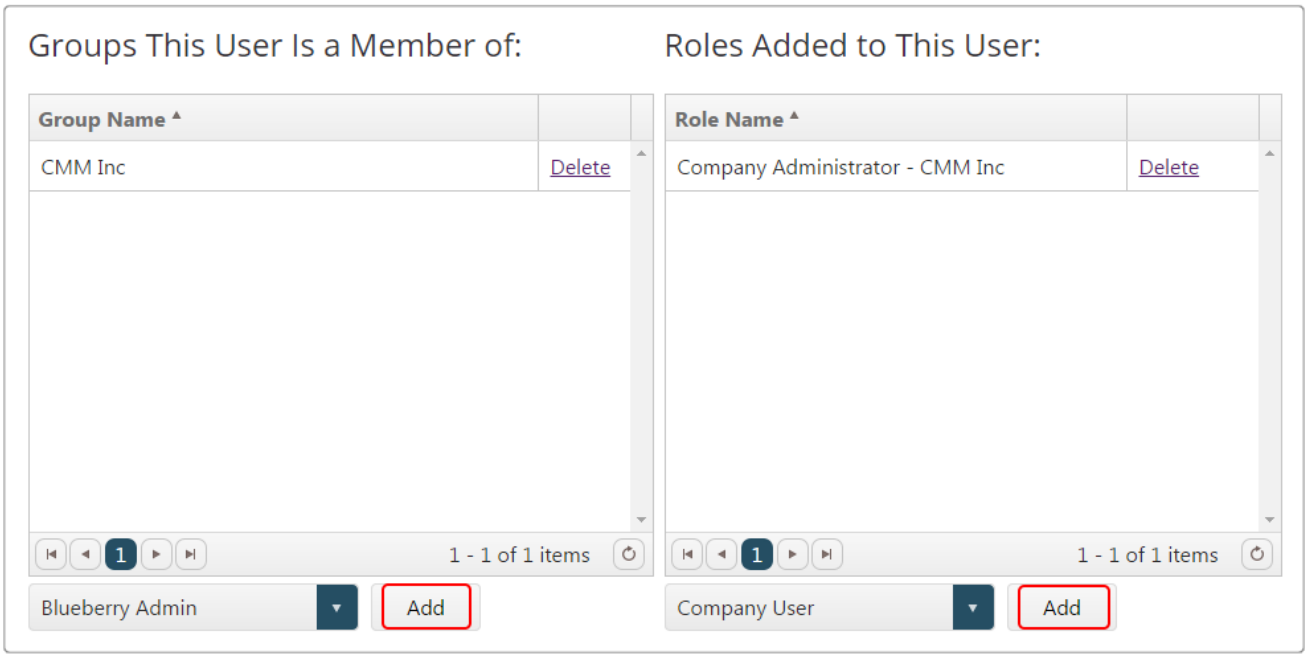
When a user has completed their registration, an Account Administrator can add them to additional groups and change their user role. To do this, do the following:

1. Log in to your CMM account.
2. Go to the **ADMIN** menu and select **MANAGE USERS** – this will take you to the Manage Users page where all existing users are listed in the grid.

3. Click on the **Edit** link for the user account that you want to edit – this will take you to the Basic Details for that user.
4. Click on the **Groups** tab.
5. Add the user to additional groups by selecting the new group in the drop down menu below the **Groups This User Is a Member** of grid and clicking the neighbouring **Add** button (all groups belonging to your account should appear in the drop down menu).

   Or

   Change the user's role by selecting the new role in the drop down menu below the **Roles Added to This User** grid and clicking the neighbouring **Add** button (see Locking a user account for more details).



6. Click **Save**.

Once a user is added to a group, they will be able to manage all servers that have been assigned to that group from the Servers screen or via the CMM Starter application, if it has been enabled. Any servers that do not belong to any of the user's groups will be hidden from them.

To remove a user from a group or change their role:

1. Log in to your CMM account.
2. Go to the **ADMIN** menu and select **MANAGE USERS** – this will take you to the Manage Users page where all existing users are listed in the grid.
3. Click on the **Edit** link for the user account that you want to edit – this will take you to the Basic Details for that user.
4. Click on the **Groups** tab.
5. Click the **Delete** link for the appropriate group and/or role.

   Note – While a user may be a member of zero groups, their last role cannot be deleted.

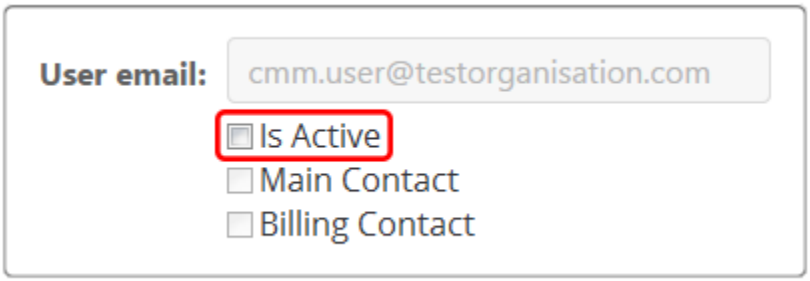
6. Click **Save**.

11.5. Locking a user account

When a new user account is created, by default their account will be active. However, it is possible to lock a user's account. This is necessary in order to edit any of the user's basic details and may also be useful if a user's account needs to be suspended for any reason without completely deleting it.

To lock a user's account:

1. Log in to your CMM account.
2. Go to the **ADMIN** menu and select **MANAGE USERS** – this will take you to the Manage Users page where all existing users are listed in the grid.
3. Click on the **Edit** link for the user account that you want to edit – this will take you to the Basic Details for that user.
4. Uncheck the **Is Active** option.



5. Click **Save**.

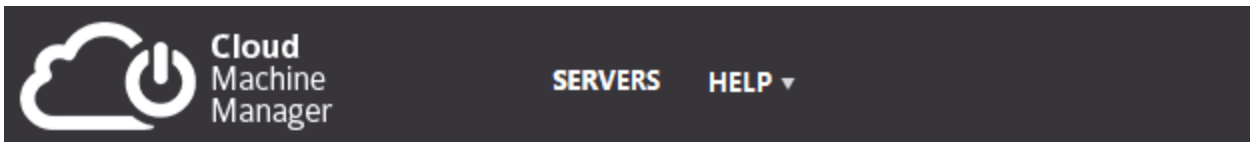
Once an account has been locked, the user will not be able to log into Cloud Machine Manager but their first name, surname and email address will now be editable by an Account Administrator.

To unlock an account, simply re-enable the **Is Active** option and **Save**.

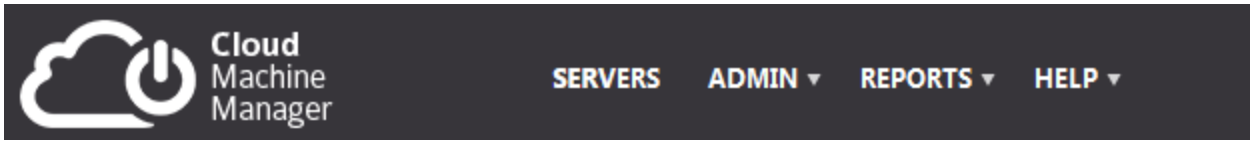
11.6. Roles and Permissions

Cloud Machine Manager allows users to be assign to one of two roles:

- **Account User** – The default user role. This role allows users to log in to Cloud Machine Manager and manage servers in groups that they are assigned to using either the Servers screen or the CMM Starter application (if it is enabled). They will see the following menus:



- **Account Administrator** – This role allows users to manage servers (just like an Account User) but also gives them access to the ADMIN menu and REPORTS menu. This allows the user to manage schedules, groups, users, invitations and the account, as well as viewing reports on Server Time and Cost Savings. They will see the following menus:

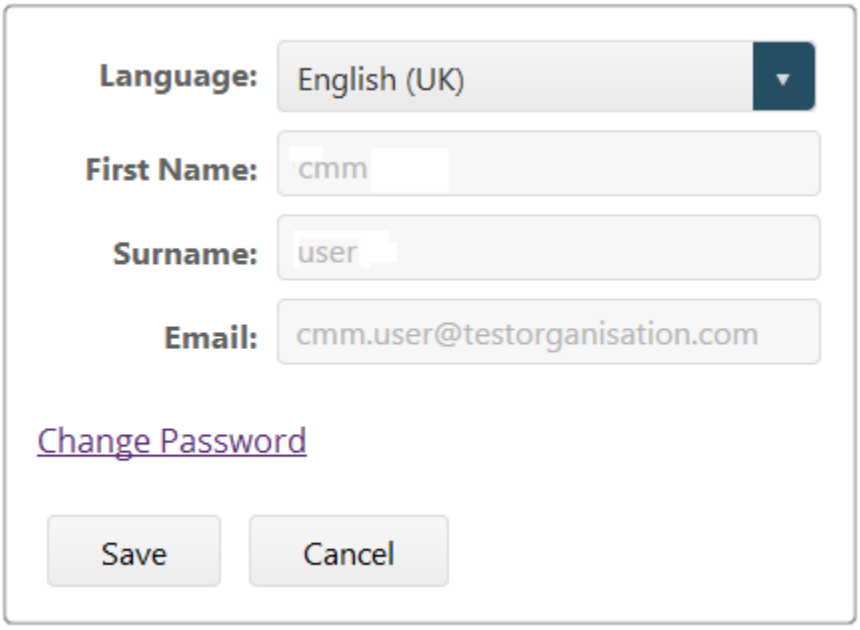


Account Administrators can manage a user's role via the Manage Users screen (see Changing a user's permissions for more details).

11.7. User Profile

A user can view their profile (which contains a summary of their account) by clicking on their name next to the Log Out button.

Their profile displays the following information the user's language, the user's first name and surname and the user's email address.



The user can also change their password by clicking on the **Change Password** link at the bottom of the screen (below the User Permission grid).

12. Groups

For Account Administrators only

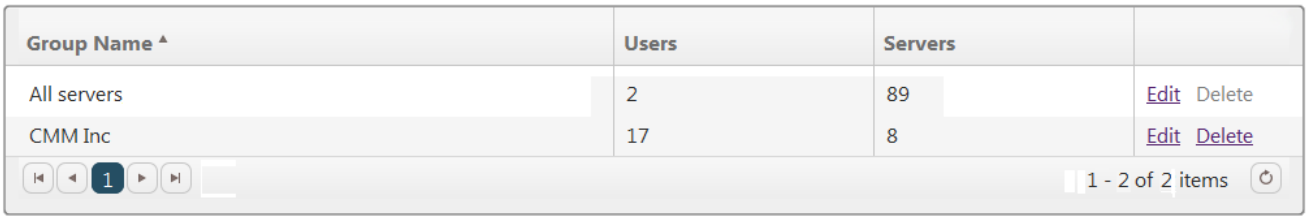
Groups determine which users can manage which servers – a user will only see servers that are assigned to groups that they are members of.

Users can be members of as many groups as necessary and a group can have multiple servers assigned to it.

12.1. Adding a new group

A new group can be added by doing the following:

1. Log in to your CMM account.
2. Go to the **ADMIN** menu and select **MANAGE GROUPS** – this will take you to the Manage Groups page where all existing groups are listed in the grid.



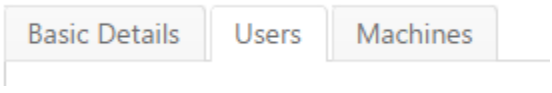
3. Click the **Add…** button that is below the grid.
4. Enter a name for the group.
5. Click **OK**.

This will create an empty group with no users or servers assigned to it.

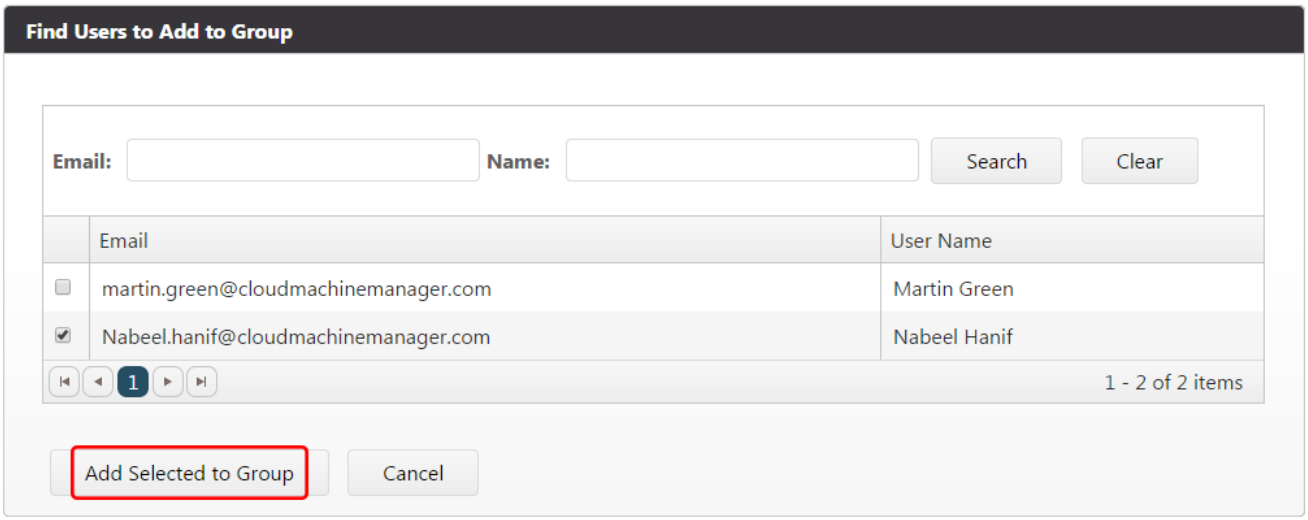
12.2. Adding users to a group

Add group members by doing the following:

1. Log in to your CMM account.
2. Go to the **ADMIN** menu and select **MANAGE GROUPS** – this will take you to the Manage Groups page where all existing groups are listed in the grid.
3. Find the group that you need to add users to and click the **Edit** link – this will take you to the **Basic Details** tab
4. Go to the **Users** tab.



5. Click the **Add** button below the grid.
6. Enable the checkbox next to any users that you want to add to the group and then click the **Add Selected to Group** button.



7. Click **Save**.

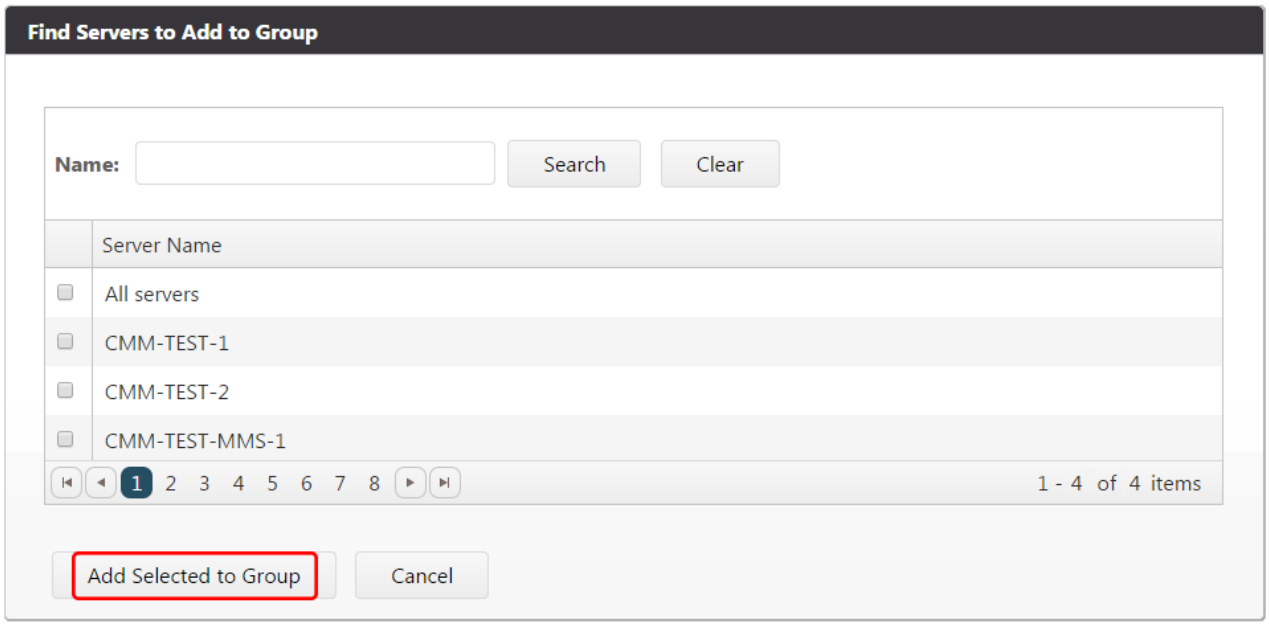
These members will be able to manage any servers that are assigned to the group from the Servers screen and using the CMM Starter application.

12.3. Adding servers to a group

In order for a group to manage a server, the server has to be assigned to the group.

To assign a server to a group

1. Log in to your CMM account.
2. Go to the **ADMIN** menu and select **MANAGE GROUPS** – this will take you to the Manage Groups page where all existing groups are listed in the grid.
3. Find the group that you need to add servers to and click the **Edit** link – this will take you to the **Basic Details** tab.
4. Go to the **Machines** tab.
5. Click the **Add** button below the grid.
6. Enable the checkbox next to any servers that you want to add to the group and then click the **Add Selected to Group** button.



7. Click **Save**.

All members of the group will now be able to manage the servers from the Servers screen and using the CMM Starter application.

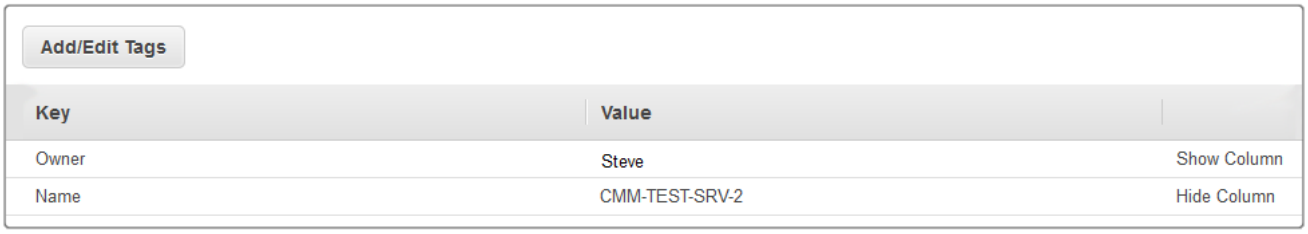
12.4. Using AWS Tags to add servers to groups

Instead of manually adding servers to a group as described above, a group can be configured to automatically add new servers based on their AWS tags. Furthermore, if a tag is removed from a server, that server will automatically be removed from all corresponding groups as well.

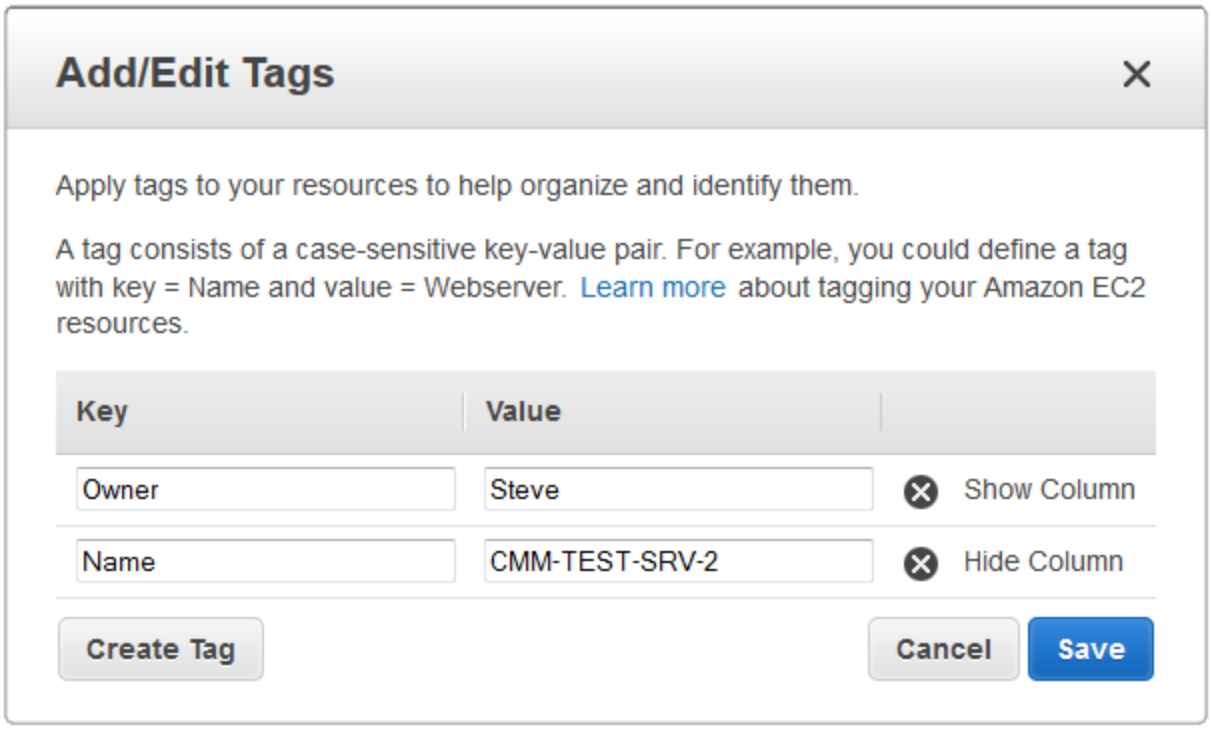
Note – If this option is enabled, it becomes no longer possible to manually add servers to a group. Only servers with the corresponding tags assigned in AWS will be assigned to the group. If this option is then disabled, servers can manually be added again but the servers that were assigned based on their tags will be lost from the group.

First of all you need to configure the tags in AWS:

1. Log in to your AWS account.
2. Find the server that you need to add the tag to.
3. Navigate to the **Tags** tab.
4. Click **Add/Edit** Tags.



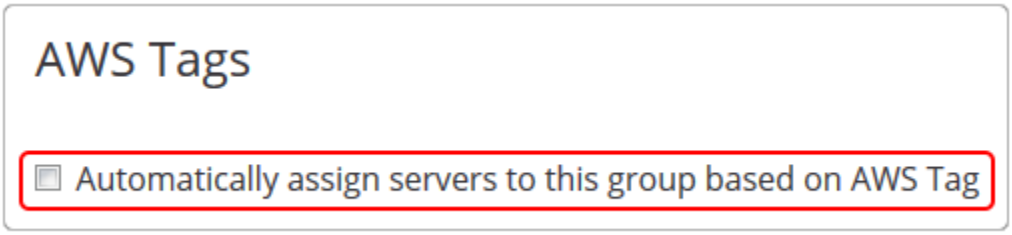
5. Click **Create Tag** and then add a **Key** and a **Value** to the empty tag that is added. This might be something like ‘Owner’ and ‘Steve’ or ‘Group’ and ‘SysAdmins’.



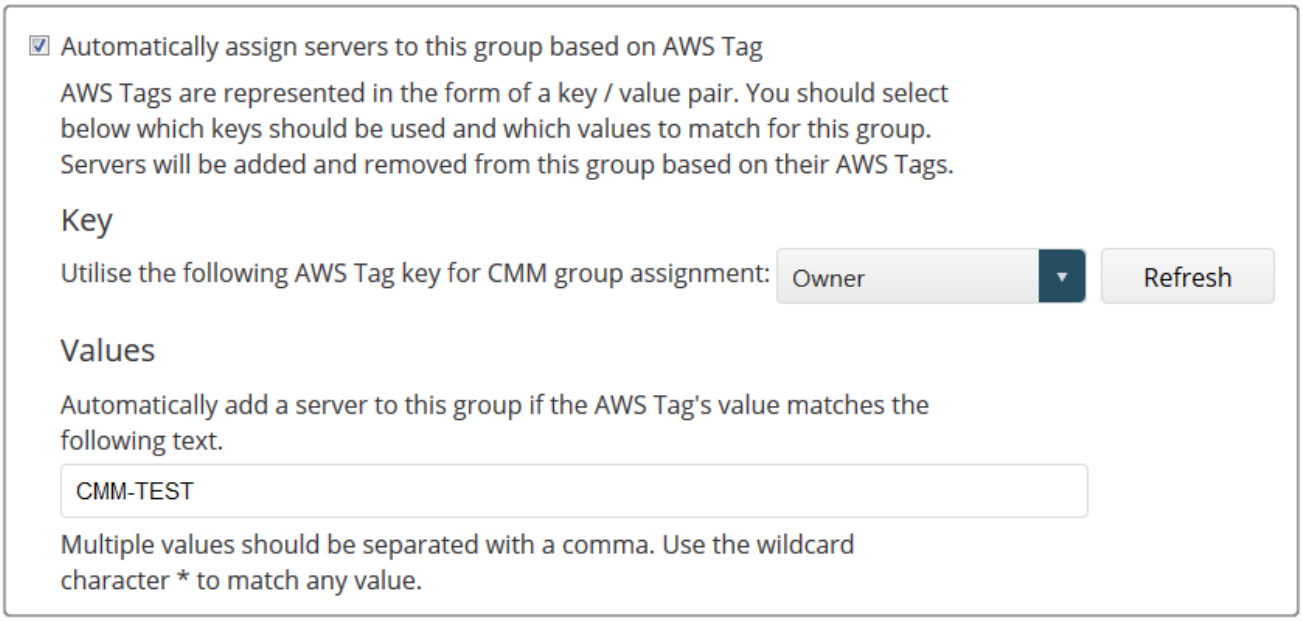
6. Click **Save**.

Once the tags have been added to the server, configure CMM to detect the tags:

1. Log in to your CMM account.
2. Go to the **ADMIN** menu and select **MANAGE GROUPS** – this will take you to the Manage Groups page where all existing groups are listed in the grid.
3. Find the group that you want to detect AWS tags and click the Edit link – this will take you to the **Basic Details** tab.
4. Enable the **Automatically assign servers to this group based on AWS Tag** option.



When this option is enabled, a series of extra options will appear below.



5. All Keys that have been added in your AWS account will appear in the Key drop down menu. Select the relevant Key for this group. (If a Key does not appear, click the Refresh button to update the list).
6. Manually enter any Values that you want to add to this group. To add multiple values for a single key, separate them by a comma. Use a wildcard character (*) to match any value – in other words, if a value exists for the selected Key, it will be added.

   For example, if you want to add all servers that belong to Steve, David and Mark in AWS, you may have a Key called ‘Owners’ and then Values would be set as ‘Steve, David, Mark’. Alternatively, if these 3 owners are actually the only owners in AWS, set Values to ‘*’ to simply include them 3 of them.

7. Click **Save**.

12.5. Editing a group

To edit the name of the group:

1. Log in to your CMM account.
2. Go to the **ADMIN** menu and select **MANAGE GROUPS** – this will take you to the Manage Groups page where all existing groups are listed in the grid.
3. Find the group that you need to add users and/or servers and click the Edit link – this will take you to the **Basic Details** tab.
4. Edit the **Group Name**.
5. Click **Save**.

13. Reports

For Account Administrators only

There are 4 types of report available to Account Administrators – Server Time, Cost Savings, Cost Savings – By Group and Usage Summary - Billing.

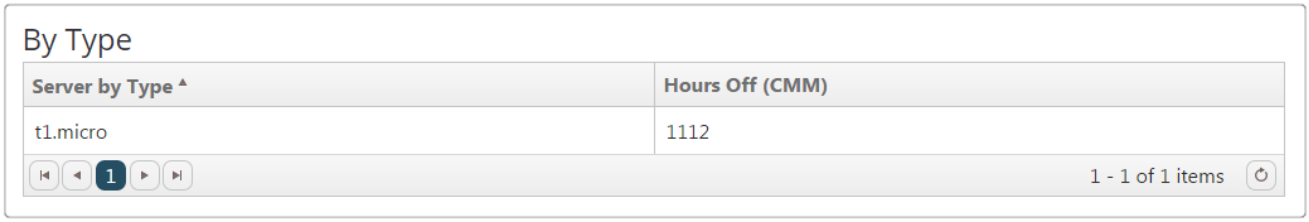
13.1. Server Time

This report details how long servers have been turned off for due to CMM schedules and how long the servers have been turned on for due to CMM schedules in the last 30 days.

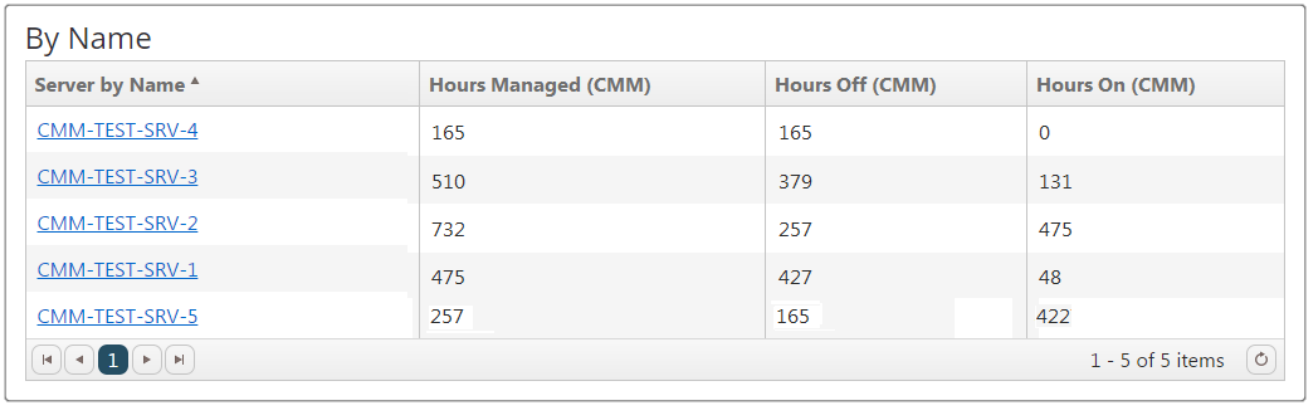
The report is divided into 3 sections:

- **By Location** – A list of the geographic locations of your servers (for example, US West (N. California), EU West (Ireland), etc) and the total time that servers in each location have been turned off for by CMM.

- **By Type** – A list of Amazon instance types (for example, t2.small, m3.medium, etc) and the total time that all servers of each type of instance have been turned off for by CMM.



- **By Name** – A list of each individual servers and the total time that that server has been turned off for and turned on for by CMM.



13.2. Cost Savings

Each type of server is listed per location (in other words all types of server for one location, then all server types for another location and so on).

Details are provided of the total number of hours that each server type has been turned off for by CMM in the last 30 days and amount of money this will save (calculated based on the type of instance that the server is).

Location	Type	Hours Off (CMM)	Cost Saving ($)
EU West (Ireland)	medium	0	0
EU West (Ireland)	micro	795	2.39
EU West (Ireland)	small	3891	92.81
			Total: $95.20

13.3. Cost Savings - By Group

Cost Saving - By Group lists all servers in each group separately to give a clear indication of savings on a group by group basis for the last 30 days. There will be a table displayed for each and every group.

Server	Region	Type	Hours On	AWS Cost ($)	Hours Off	CMM Saving ($)
CMM-TEST-SRV-1	EU West (Ireland)	micro	0	0	165	0.49
CMM-TEST-SRV-2	EU West (Ireland)	micro	0	0	0	0
CMM-TEST-SRV-3	EU West (Ireland)	micro	95	0.29	80	0.24
CMM-TEST-SRV-4	EU West (Ireland)	micro	163	0.49	116	0.35
CMM-TEST-SRV-5	EU West (Ireland)	micro	75	0.23	435	1.31
CORE-TEST-SRV-1	EU West (Ireland)	small	0	0	713	7.13
						Total: $9.52

Based on the number of hours that each server is on for and the number of hours that it is turned off by CMM, the AWS cost for the last 30 days is calculated and the amount of money saved by for the hours off is calculated.

13.4. Usage Summary - Billing

The Usage Summary lists the maximum number of each category size used in both the current month and then previous month. Your bill will be based on the maximum number of servers in each category that are managed by CMM over the course of each month. The date on which the maximum number of servers was detected is indicated.

The categories are as follows:

1. **Small** - Micro, small and medium EC2 servers
2. **Large** - Large and xlarge EC2 servers
3. **Monster** - All EC2 servers that are larger than xlarge

Clicking on each category name will display a breakdown of which servers are included in that particular category.

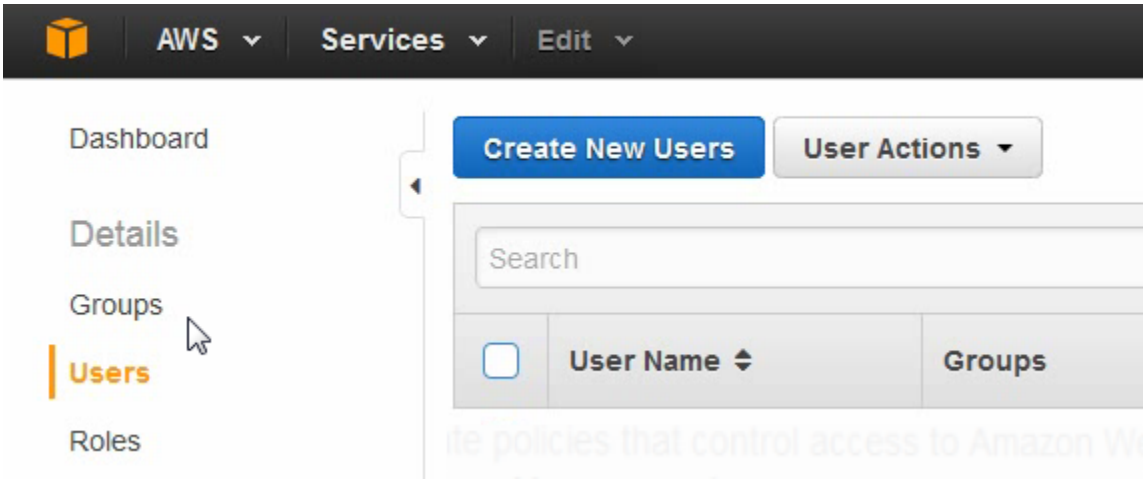
14. Setting up your Amazon AWS account

In order to use Cloud Machine Manager (CMM) with Amazon Web Services (AWS), it is necessary to configure a new user in AWS and provide it with the correct access permissions. Because Amazon has a sophisticated rights management system, these keys are configured to have the bare minimum of privileges to allow CMM to operate to prevent any risk to your servers.

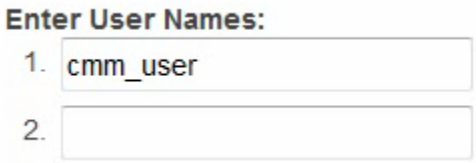
14.1. Creating a new AWS user

First of all, a new user needs to be created in the IAM Management Console.

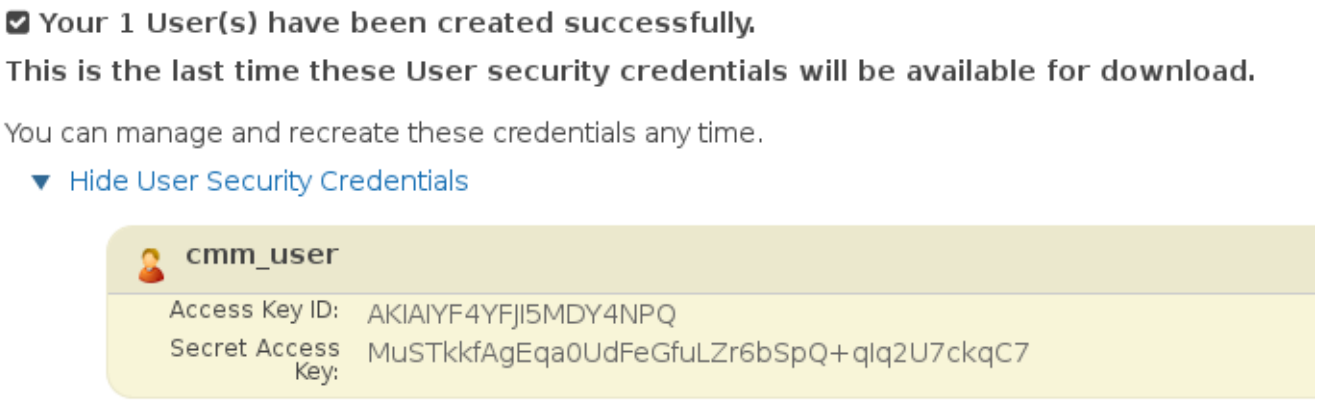
1. Go to the Amazon IAM Console.
2. Click **Users**.
3. Click the **Create New Users** button.



4. Enter the user name in the first text box. You might want to call it something like 'cmm_user'.



5. Make sure that the **Generate an access key for each user** option is enabled and then click the **Create** button.
6. When the key has been created for the user, download the credentials file by clicking the **Download Credentials** button.



Note - This will be the last time that you can view the secret access key for this user so please take a note of the following information since it will be required by CMM in order to create a CMM account:

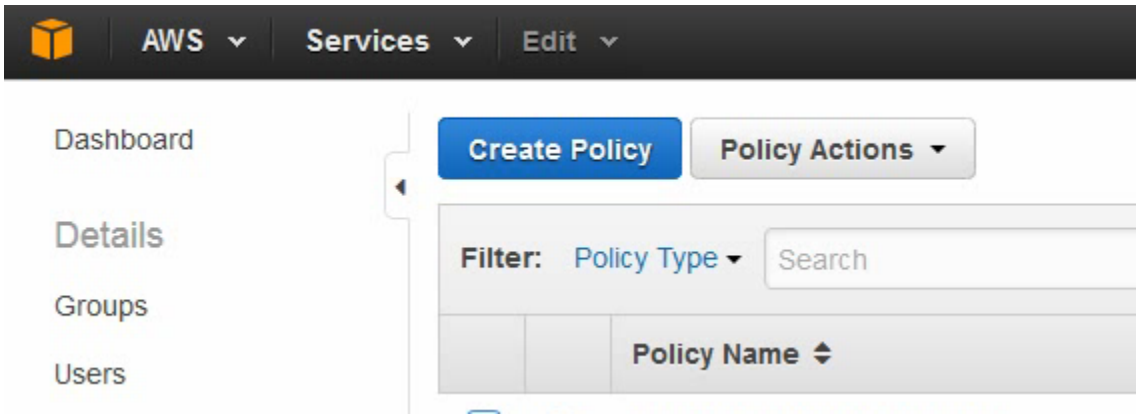
- Access Key ID
- Secret Access Key

A video demonstration on how to create your user is available here.

14.2. Creating an access policy for use with CMM

When keys have been created, the user settings need to the edited as below to create an access policy for use with CMM:

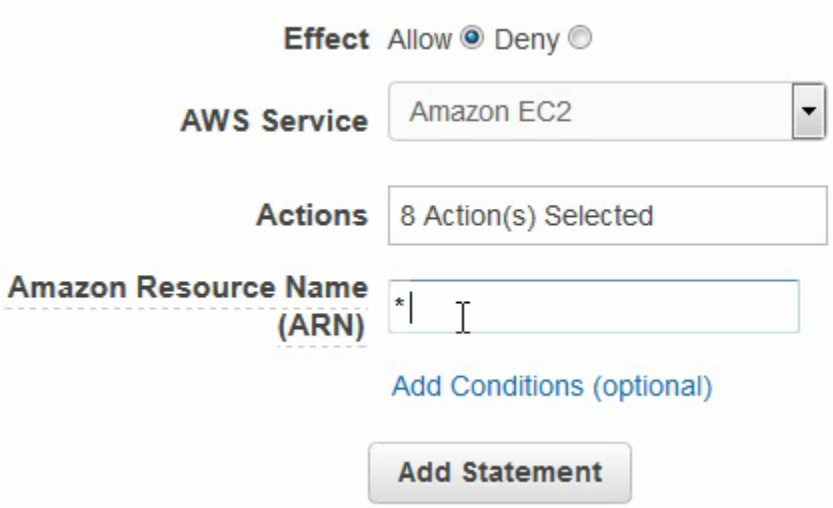
1. From the IAM Console, go to **Policies**.
2. Click the **Create Policy** button.



3. Click the **Select** button for **Policy Generator**.
4. Select **Amazon EC2** in the **AWS Service** combo box and then enable the following options in the **Actions** combo box:
    - AssociateAddress
    - DescribeAddresses
    - DescribeInstanceStatus
    - DescribeInstances
    - DescribeRegions

- DescribeTags
- StartInstances
- StopInstances

5. Enter '*' into the Amazon Resource Name field. You should now see this:



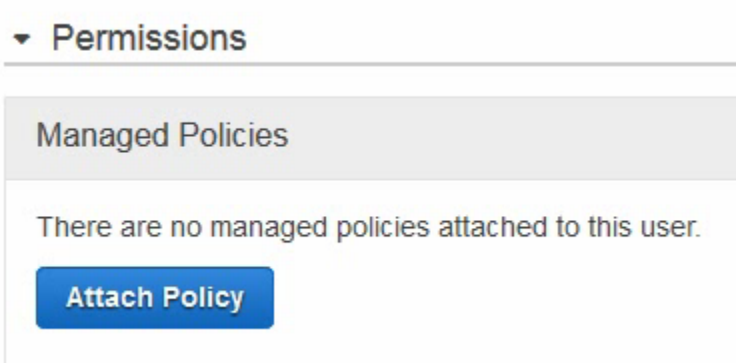
6. Click the **Add Statement** button.
7. Select **Amazon Route 53** in the **AWS Service** combo box and then enable the following options in the **Actions** combo box:
   - ChangeResourceRecordSets
   - GetChange
   - ListHostedZones
   - ListResourceRecordSets
8. Enter '*' into the Amazon Resource Name field.
9. Click the **Add Statement** button.
10. Select **Amazon CloudWatch** in the **AWS Service** combo box and then enable the following options in the **Actions** combo box:
    - GetMetricStatistics
11. Enter '*' into the Amazon Resource Name field.
12. Click the **Add Statement** button.
13. Select **AWS Identity and Access Management** in the **AWS Service** combo box and then enable the following options in the **Actions** combo box:
    - ListAccessKeys
14. Enter '*' into the Amazon Resource Name field.
15. Click the **Add Statement** button.
16. Click **Next Step**.
17. Enter a Policy Name in the field provided. You may want to call it something like "CMM_Policy".
18. Click the **Create Policy** button.

A video demonstration on how to create your access policy is available here.

14.3. Assigning an AWS policy to a user

Now that the new permissions policy has been created, it needs to be attached to the new user:

1. Go to **Users** in the IAM Console.
2. Click on the new user that was previously created.
3. Click the **Attach Policy** button.

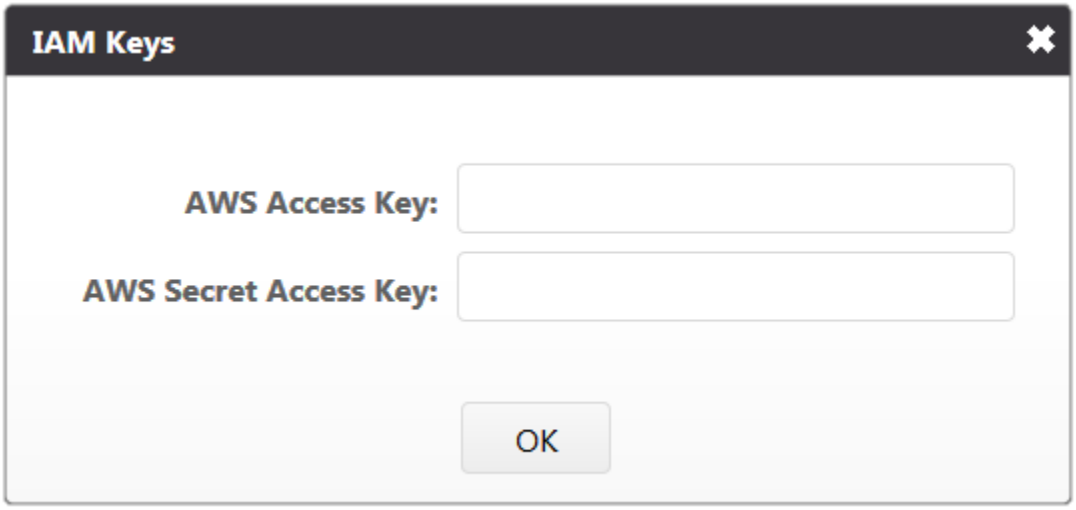


4. Select the newly created policy and click the **Attach Policy** button.

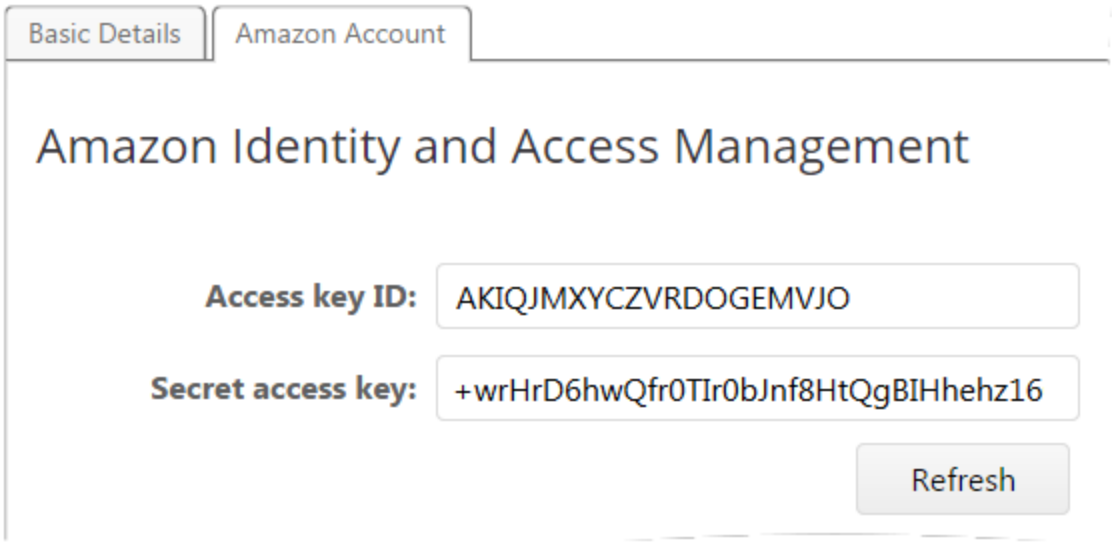
A video demonstration on how to attach your access policy to a user is available here.

14.4. Completing CMM Setup

As you complete your account registration process, you will be presented with a dialogue for entering your AWS Keys that were created previously (see Creating a new AWS user for more details):



You can update your keys at any time by editing your Account information (see Amazon account details for more details).


Basic Details
Amazon Account
Amazon Identity and Access Management
Access key ID:
AKIQJMXYCZVRDOGEMVJO
Secret access key:
+wrHrD6hwQfr0TIr0bJnf8HtQgBIHhehz16
Refresh