Foglight® Consolidation Advisor 6.0.0
User Guide

Legend

> ■ **WARNING: A WARNING icon indicates a potential for property damage, personal injury, or death.**

> ❗ **CAUTION: A CAUTION icon indicates potential damage to hardware or loss of data if instructions are not followed.**

> ℹ **IMPORTANT NOTE**, **NOTE**, **TIP**, **MOBILE**, or **VIDEO:** An information icon indicates supporting information.

Foglight Consolidation Advisor User Guide
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Using Foglight Consolidation Advisor

Foglight Consolidation Advisor helps you to plan future consolidations of your virtual and physical servers by calculating the combined load of VMware virtual machines and physical hosts and recommend the hardware needed to run the combined load. The load is defined as the total use of the following resources:

- CPU (in Hz)
- Memory (in GB)
- Storage (in GB/TB)
- IOPS (in commands/sec)

The recommendation will be a list of hardware needed to run the combined load. You will be able to define a set of servers you are considering for deployment in your environment. Consolidation Advisor will choose from this list of servers and will spread the load evenly.

Installation Requirements

Foglight Consolidation Advisor comes installed on Foglight Evolve, and can be installed on a Foglight Management Server.

Foglight Consolidation Advisor requires the following cartridges for data collection:

- CommonAnalytics-6_0_0.car
- Virtual-VMware-6_0_0.car

While Foglight Evolve comes with these cartridges pre-installed and enabled, a stand-alone Foglight release requires that these components be installed on the Foglight Management Server. For more information about installingFoglight Consolidation Advisor and for details about system requirements and version compatibility, see the *Foglight Consolidation AdvisorRelease Notes*.

Dashboard location

After installing Foglight Consolidation Advisor, the Consolidation Advisor entry appears under *Homes*.

To access the Foglight Consolidation Advisor dashboard:

1 Log in to the Foglight browser interface.

2 Ensure that the navigation panel is open.

    To open the navigation panel, click the right-facing arrow on the left.

3 On the navigation panel, under Dashboards, click **Consolidation Advisor.**

    The **Consolidation Advisor** dashboard opens.

Figure 1. Consolidation Advisor dashboard
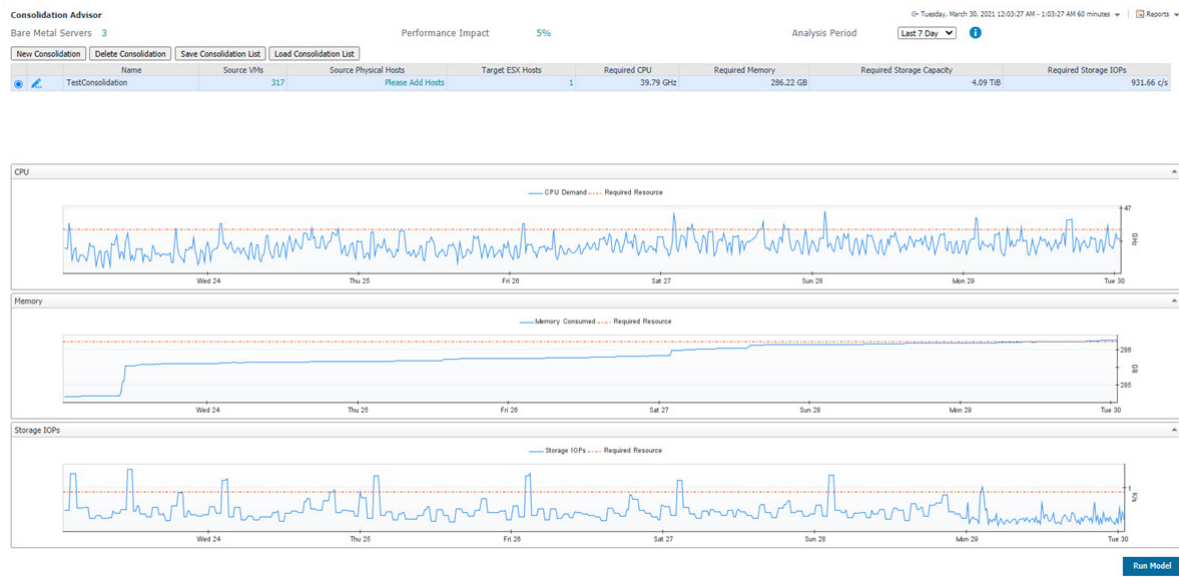
Consolidation Advisor dashboard introduction

The Consolidation Advisor dashboard consists of the following UI elements:

- Homepage
- Consolidation Recommendation page

Homepage

The Consolidation Advisor dashboard includes the following elements:

- *Bare Metal Servers*

  Servers can be added manually or by importing a CSV formatted file

- *Performance Impact*

  Performance Impact helps ensure a balance between costs and performance. Impact is measured by understanding how often a virtual machine exceeds the proposed destinations available resources. The default value is 5%, but you can enter a value between 0 – 100%. The higher the percentage, the more performance will be impacted.

  For example, by setting a value of 10%, the impact algorithm will assess how often a cloud cluster exceeds the proposed destination resources and count each breach of the available resources based on historic performance.

- *Analysis Period*

  This period will be used to calculate the average usage of the needed resources (CPU, memory, and so on) in the consolidated environment. Users can define an Average Analysis Period. The default value is 7 days and other values, such as 1, 3, and 30 days, are supported.

  > **i** | **NOTE:** Ensure that the chosen period is available in Foglight. If 30 days is chosen, while only 3 days of history data is available in the Foglight database, it will only use the 3 days of data for the average analysis period.

- *Consolidation table*

Configured consolidations will be displayed in the consolidation table. Refer to Creating and Managing Consolidations for information on working with consolidations.

Click the button next to a consolidation to view the aggregated resource metric charts for that consolidation for the selected analysis period.
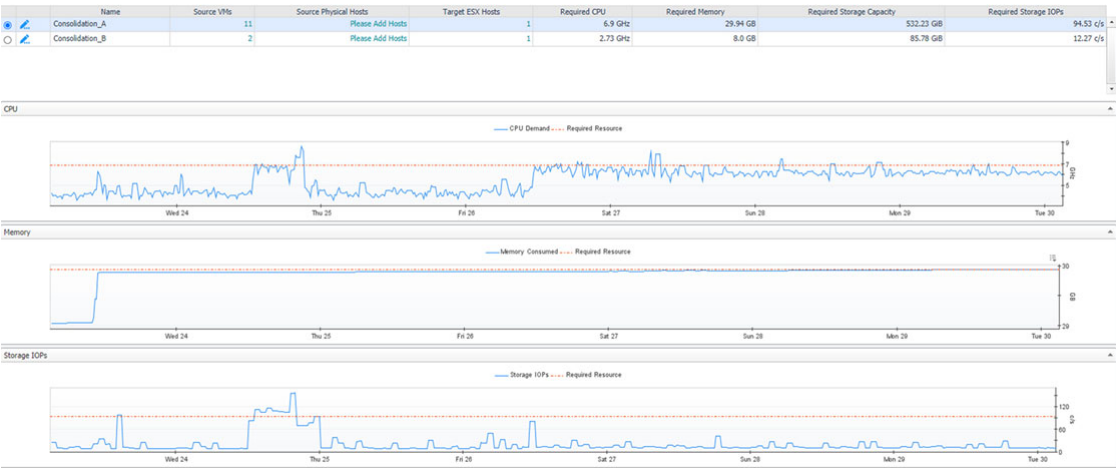
- **Run Model** button

    Click the button to assess the configured consolidations. The consolidation model with the lowest cost will be recommended.

Consolidation Recommendation page

The Consolidation Recommendation page displays the required hardware for the chosen consolidation project.

The Consolidation Recommendation page includes the following:

- *Consolidation Summary table*

    This table displays the total number of VMs and physical hosts in the configured consolidations, as well as the aggregate metrics for the consolidation. This table includes the following controls:

    - **VMs** and **Phyical Hosts**

        Clicking on the number in the VMs or Physical Hosts cell allows to change the source workloads in the consolidation.

    - **All Available Servers**

By default, Consolidation Advisor recommends the least expensive server for the consolidation. You may select a different server by clicking **All Available Servers** and selecting a new server from the dialogue. Refer to Working with bare metal servers for information on adding servers.

- *VM & Physical Host table*

  The VM & Physical hosts table lists the recommended hardware to host the consolidated workloads.

  - **Allocated Physical Hosts**

    Click the number in the Allocated Physical Hosts cell to view the physical hosts allocated to the target server.

  - **Allocated VMs**

    Click the number in the Allocated VMs cell to view the virtual machines allocated to the target server.

- **Back** button

- **Recalculate** button

  When changing the VM, physical host, or server configuration, click **Recalculate** to update the recommendation.

Working with bare metal servers

Consolidation Advisor presents cost and placement recommendations for moving a selected workload consolidation to new and/or existing servers. To facilitate this, you can create a Bare Metal Server list containing the hardware configurations (and associated cost) for new bare metal servers under consideration.

Managing the Bare Metal Server List

Foglight Consolidation Advisor allows you to manage the Bare Metal Server list as follows:

- Adding a new server
- Editing existing servers
- Deleting existing servers
- Importing server list
- Exporting server list

Adding a new server

To add a new server:

1 On the Consolidation Advisor homepage, click the numeral next to **Bare Metal Servers**.

2 In the **Bare Metal Server** table, click **Add**.

3 In the **Add Bare Metal Server** dialog box, specify the following values, as needed.

- *Manufacturer: The manufacturer of the new server.*

- *Model Name: The model name of the new server.*

- *Unit Cost ($): The unit cost (in dollar) of the new server.*

- *Number of CPU Cores: The number of CPU cores of the new server.*

- *Physical CPU Speed: The physical CPU speed of the new server. The unit is one of the following: MHz, GHz (default option), and THz.*

- *Amount of Physical Memory: The physical memory of the new server. The unit is one of the following: MB, GB (default option), and TB.*

- *Storage Capacity: The storage capacity of the new server. The unit is one of the following: MiB, GiB, TiB.*

- *Storage IOPS: The IOPS rating of the new server.*

4 Click **Save**.

The **Bare Metal Server** table is updated to show the new server.

Editing existing servers

To edit an existing server:

1   On the Consolidation Advisor homepage, click the numeral next to **Bare Metal Servers**.

2   Select an existing server from the **Bare Metal Servers** table, and click the **Edit** icon .

3   In the **Edit Bare Metal Server** dialog, change any of following values, as needed.

   ▪   *Manufacturer: The manufacturer of the new server.*

   ▪   *Model Name: The model name of the new server.*

   ▪   *Unit Cost ($): The unit cost (in dollar) of the new server.*

   ▪   *Number of CPU Cores: The number of CPU cores of the new server.*

   ▪   *Physical CPU Speed: The physical CPU speed of the new server. The unit is one of the following: MHz, GHz (default option), and THz.*

   ▪   *Amount of Physical Memory: The physical memory of the new server. The unit is one of the following: MB, GB (default option), and TB.*

   ▪   *Storage Capacity: The storage capacity of the new server. The unit is one of the following: MiB, GiB, TiB.*

   ▪   *Storage IOPS: The IOPS rating of the new server.*

4   Click **Save**.

   The **Bare Metal Servers** table is updated to show the changes made to *this* server.

Deleting existing servers

Before deleting existing servers, in the *Server Purchase* pane, click the Replace Existing Servers tab or the Purchase Additional Servers tab, and locate the Server List table at the bottom of the Server Purchase view.

To delete one or more existing server(s):

1   On the Consolidation Advisor homepage, click the numeral next to **Bare Metal Servers**.

2   Select an existing server from the **Bare Metal Servers** table, and click **Delete**.

3   In the **Confirm Delete Bare Metal Servers** dialog, click **Delete**.

   The server is removed from the **Bare Metal Servers** table.

Importing server list

To import an existing server list:

1   On the Consolidation Advisor homepage, click the numeral next to **Bare Metal Servers**.

2   In the **Bare Metal Server** table, click **Import**.

3   Click **Browse** to browse your local drive and select a .csv file, and click Open.

4   Click **Import**.

   The **Bare Metal Servers** table is updated automatically to include the imported servers.

Exporting server list

To export a server list:

1   On the Consolidation Advisor homepage, click the numeral next to **Bare Metal Servers**.

1   In the **Bare Metal Server** table, click **Export**.

2   Download the server list as a *.csv* file to a location of your choice.

     In the dialog box that appears, select a location for saving the file, then click **Save**.

     The server list is saved as a *.csv* file to the selected location.

Creating and Managing Consolidations

Consolidation Advisor uses **consolidations** to group target VMs and physical hosts into logical groups for consolidation modeling purposes. You may create multiple parallel consolidations, and target VMs and physical hosts can belong to more than one consolidation.

Consolidation Advisor supports the following consolidation actions:

* Setting consolidation parameters
* Creating consolidations
* Saving and loading consolidation lists
* Deleting consolidations

Setting Consolidation Parameters

When creating consolidations, you can configure the Performance Impact and Analysis Period parameters to ensure you are modeling the correct workload.

Performance Impact

The performance impact parameter allows you to configure an allowable performance impact when modeling consolidations. Using this value and the historical performance data, you can find the right balance between cost and performance. For example, a higher impact percentage will result in reduced performance, but also reduced hardware cost.
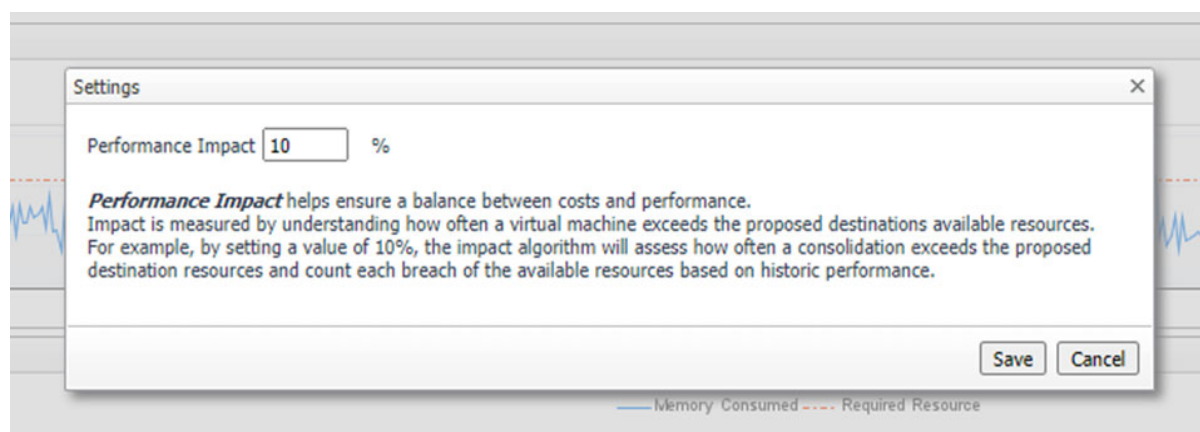
To change the performance impact value:

1 On the Consolidation Advisor homepage, click the number next to **Performance Impact**.

2   Enter the desired value, and click **Save**.

Analysis Period

The analysis period is used to calculate the average use of the needed resources (CPU, memory etc.) in the consolidated environment. The default analysis period is 7 days, but you may select either 1, 3, 7, or 30 days.

> **NOTE:** Before selecting an analysis period, ensure that the data for that period is available in Foglight.

To set the analysis period:

1   On the Consolidation Advisor homepage, click the drop-down next to **Analysis Perod.**
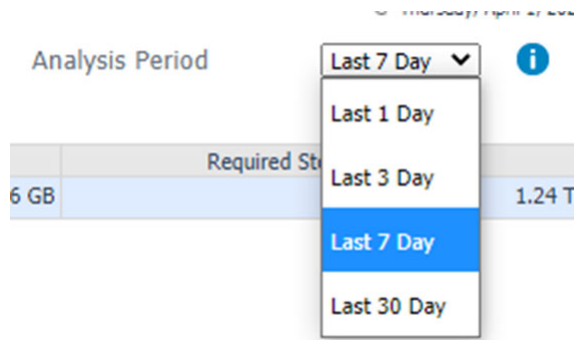
2   Click a value to select the analysis period.

Creating a consolidation

Created consolidations will be displayed in the consolidation table. You may create multiple consolidations and use them to compare consolidation options.

> **IMPORTANT:** When ESX Hosts and physical hosts are added to the consolidation, the consolidation model will use those servers to host consolidated workloads.

> **IMPORTANT:** In order to select VMware VMs for consolidation, the VMware Agent must be configured to collect data on those VMs. Refer to the **Foglight for VMware** documentation for more information.

To create a new consolidation, do the following:

1   On the Consolidation Advisor homepage, click **New Consolidation**.

     The **Add Consolidation** wizard is displayed, with pages for:

     ▪   Consolidation Details

     ▪   Target VMware ESX Hosts

     ▪   VMWare Virtual Machines

     ▪   Physical Hosts

2   Enter a **Consolidation Name**.

3   Configure the percentage of **Allocatable Resources** (CPU, Memory, and Storage) to plan for in the consolidation.

     The configured value defines what percentage may be used in the newly consolidated hardware after the target load is running on the server. This allows you to plan for future growth by reserving capacity.

4   Select the **Target ESX Hosts** to be used in the consolidation. Click **Next**.

When adding ESX hosts, the VMs running on the host will be added to the list of virtual machines automatically. You may remove VMs in the next step.

5   Select virtual machines to be consolidated.

> ℹ | **NOTE:** Foglight Consolidation Advisor supports only VMware virtual machines.
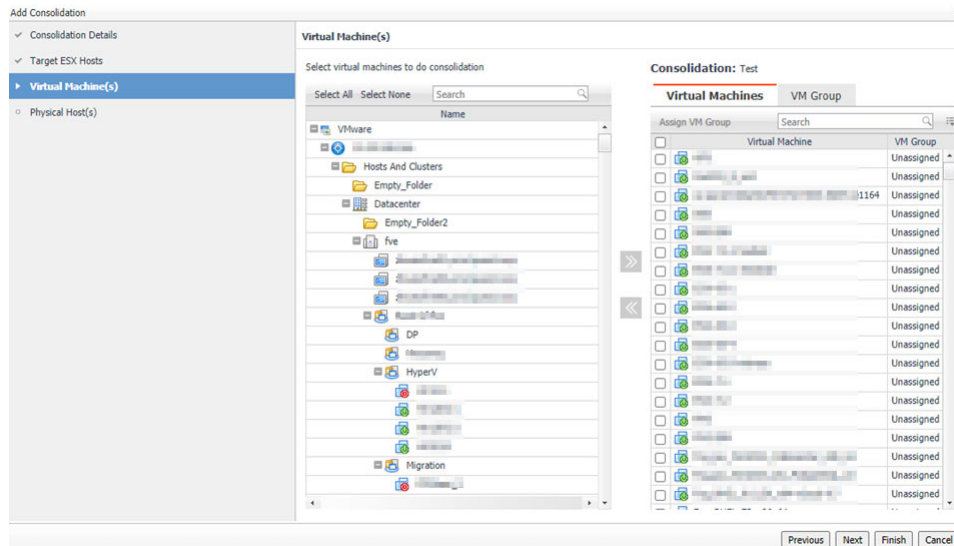
The Virtual Machines dialog contains two panes. The left pane contains all of the VMs on the selected hosts. The right pane contains VMs selected for consolidation.

By selecting VMs on the left and moving them to the right , you can choose which VMs should be considered for consolidation. You may remove VMs from the consolidation by selecting the VMs in the right pane, and clicking the left arrow.

Using VM Groups

You can assign multiple VMs to a VM Group for bulk processing. VM Groups can be either:

- Inclusive - VMs in an inclusive group will be moved to the same ESX host
- Exclusive - VMs in an exclusive group will be moved to different ESX hosts.

To assign VMs to a VM group:

When assigning VMs to a group, you must first create the group and then assign VMs.

1   In the right pane, click **VM Group**. Click **Add**.

2   Name your VM group and select **Inclusive** or **Exclusive**.Click **Save**.

3   Click the **Virtual Machines** tab.

4   Select the VMs to add to the group.

5   Click **Assign VM Group**. Select the appropriate group and click **Save**.

6   Click **Next**.

7   Select physical hosts to add to the consolidation. Click **Finish**.

> ℹ | **NOTE:** Physical hosts must be monitored by Foglight for Infrastructure to appear on the Physical Hosts list.

The consolidation is ready to model.

Saving a consolidation list

Once a consolidation is created, you can save it for future use.

To save a consolidation list:

1   On the Consolidation Advisor homepage, select the consolidation you wish to save.

2   Click **Save Consolidation List**.

3   If you have previously saved a consolidation list, you will be prompted to either **Replace current consolidation list** or **Create new consolidation list**.

    If this is the first consolidation list saved, you will be prompted to enter a name for the consolidation list, and

4   Make the appropriate selection and click **Save**.

Loading a consolidation list

To load a consolidation list:

1   On the Consolidation Advisor homepage, click **Load Consolidation List**.

2   Select the consolidation list to load. Click **Load**.

Deleting a consolidation list

To delete a consolidation list:

1   On the Consolidation Advisor homepage, click **Load Consolidation List**.

2   Select the consolidation list to delete. Click the delete icon.

Understanding Consolidation Models

Consolidation Advisor analyses the average resource consumption of configured servers and determines the most cost-effective way to host those workloads. When consolidating physical servers and ESX hosts, Consolidation Advisor will try to balance the workload among the existing hosts, but will add new bare metal hardware as required.

Running a model

To run a consolidation model:

1   On the Consolidation Advisor homepage, select or load the consolidation to model.

2   Click **Run Model**.

Viewing Recommendations

After the model has run, a breakdown will be shown of the hardware needed for the chosen consolidation project. When more than one server is needed, it will be shown on the list of servers.

Consolidation Advisor will try to spread the load on existing ESX hosts and consolidated physical hosts, but will add new hardware when the combined load does not fit the existing hardware.

To view placement recommendations:

•   In the VMs & Physical Host table, click the numeral in the Allocated VMs or Allocated Physical Hosts cell.

A table will display the VMs or physical hosts consolidated on the target host server for that row.

To change bare metal servers used:

Consolidation Advisor will recommend the lease expensive bare mental server by default, but an alternate server can be selected for the consolidation from the following table..

    1 In the consolidations table, click the numeral in the **All Available Servers** cell.

    2 Select another bare metal server for your consolidation model.

    3 Click Recalculate to view new recommendations.

About us

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