



CAM 14.2 External Connector

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CAM External Connector

The CAM External Connector is a Cherwell Asset Management tool that enables you to use inventory data collected by other IT asset management (ITAM) tools directly within CAM by configuring and importing that data into a CAM Database. Once imported, you have access to that data from within CAM Administrator for license unit configuration, from Purchasing for purchase reconciliation, and from Reporting and License Analytics for all reporting activities.

The CAM External Connector supports importing data from Microsoft's System Center Configuration Manager (SCCM), allowing you to:

- Configure access to the other ITAM tool database.
- Configure the mapping of that tool's hardware data to the machine properties model used within CAM.
- Select which machines to import.
- Perform the import process.

Dialog Boxes

CAM Database Dialog Box

You can enter information about the CAM Database to use with the CAM External Connector.

To enter information about the CAM Database to use with the CAM External Connector:

1. Choose a SQL server from the drop-down list, or type a server name.
2. Select the authentication method (Windows or SQL Server), and then enter the appropriate login name and password.

This is usually the information that you specified when the database was created during the Setup process. The CAM Database access typically uses SQL authentication for all Cherwell Asset Management activities; however, for the import process, either SQL or Windows authentication may be used.

3. In the Database Name list, select the name of the CAM Database to use.

You must have full access to the CAM Database you've selected.

4. Click **Connect**.

CAM External Connector Dialog Box

You can configure an SCCM data source for the data you want to import and start the import process.

To create a new data source:

1. Click **New**.
2. Select how you want to connect, the database to use as your data source, which machines to import, and the CAM-to-SCCM field mapping rule set.



Note: In the Database section under **Name**, you'll typically select your SCCM site database as the data source.

3. Click **OK**.



Tip: You can also set up the import process to [run on a scheduled basis](#).

You can click **Import** again whenever you want to import data using the same information. Each time you run the import process, any updated inventory information will be imported for the selected machines where the data source is available.

If any data sources have already been configured, they are shown in the list.

To make changes to an existing data source:

1. Select the data source from the list.
2. Select **Edit**.

To remove a data source from the list:

1. Select the data source from the list.
2. Select **Delete**.



Note: In the Database section under **Name**, you'll typically select your SCCM site database as the data source.

For on-premises installations only:

- To use a different CAM Database, select **Change CAM Database Connection** and enter information for your desired SQL Server, CAM Database, and credentials.

Choose SCCM Collections to Import

You can specify which SCCM collections to import.

To specify which SCCM collections to import:

1. From the list, select the machines in the SCCM database to import.

Note:



- You can expand and collapse nodes as needed.
- The number in parentheses next to a collection represents the number of machines in that specific collection.
- Collections of machines within a larger collection are not selected when you select the larger, "parent" collection. Ensure you've selected all machines you want to import within each collection.

2. When you are satisfied with your selections, click **OK**.
Information on your collections will be shown.



Note: The total number shown for a collection in this dialog box may not match the total number shown in the Import SCCM Data dialog box. This is because this dialog box may include duplicate machine name/domain combinations. When duplicate machine/domain combinations are found in the SCCM data, only information from the machine with the most recent inventory data is imported.

Import SCCM Data Dialog Box

You can view the status of the import process.

After you click **Import** in the CAM External Connector dialog box, the progress of the import process is shown here. Data on any selected machines for which updated SCCM data is available in your [configured data source](#) is imported.



Note: The total number shown for a collection in this dialog box may not match the total number shown in the Choose SCCM Collections to Import dialog box. This is because the Choose SCCM Collections to Import dialog box may include duplicate machine name/domain combinations. The progress dialog box uses the following rules when displaying the number of machines it will import:

- Only machines with inventories more recent than the last import are counted.
- Only distinct machine name/domain pairs are counted (the same machine may be in multiple groups).
- The CAM External Connector will only import as many machines as you have licensed for inventory. If you have 100 licenses of inventory and 50 machines are already inventoried, no more than 50 additional machines are imported, even if the selected collection contains more than 50. The original 50 machines will have their inventory updated if a newer inventory is available.

Tip:



- You can move this dialog box so that you can view the current settings shown in the main dialog box before you proceed.
- Once you've successfully imported data, you can use the Task Scheduler to schedule the importing process in the future; see [Schedule the Import Process](#).

New/Edit SCCM Data Source Dialog Box

You can select an SCCM data source from which to import data.

This dialog box opens when you click **New** or **Edit** in the CAM External Connector dialog box.

The options in this dialog box are as follows:

- **Name:** Type a name for this data source. This name will appear in the list of data sources in the CAM External Connector dialog box.
- **Description:** Type a description for this data source, which also appears in the CAM External Connector's list of data sources.
- **SQL server:** Choose a SQL server from the drop-down list box or type a server name.
- **Connect using:** Select the authentication method (Windows or SQL Server), and then enter the appropriate login name and password.

This is usually the information that you specified when the database was created during the Setup process. SCCM database access typically uses Windows authentication; however, for the import process, either SQL or Windows authentication may be used if the SCCM database supports mixed mode authentication.

- **Database name:** Select the name of the SCCM Database to use. If the authentication data (above) is not valid, no databases will appear in the database name list.
 - Note that to import machine collections with a batch size greater than one, you'll need privileges within SCCM that allow creation of temporary tables. By default, the batch size is 25.
 - For larger sites, consider backing up the SCCM database and using the backup as the source of the import process. It is recommended that the backup be restored to the same SQL server as that hosting the CAM Database to minimize network impact.
- Click **Select which machines to import, Collections button** to open the Choose SCCM Collection to Import dialog box, where you select which machine collections to import.
- Click **Select CAM-to-SCCM field mapping rule set, Mapping button** to open the SCCM Hardware Field Mapping dialog box, where you configure SCCM-to-CAM mapping.

When you are finished configuring the data source, click **OK**.

Any data sources you create are available in the CAM External Connector dialog box, where you can run them at any time by clicking **Import**. Each time you run the import process, any selected machines for which updated SCCM inventory information is available will be imported.



Note: This dialog box is called New SCCM Data Source if you are defining a new data source, and Edit SCCM Data Source if you selected an existing data source in the CAM External Connector dialog box to.

Related information

[Connector_Changing_the_import_batch_size.xml#concept1365](#)

[Connector_Scheduling_the_import_process.xml#concept1861](#)

Replace Field Mappings Dialog Box

You can replace the selected CAM-to-SCCM field mappings.

- To replace with a mapping you've saved in another SCCM data source, select the data source that contains the mapping from the list.
- To revert to the default mapping, select the Use default field mappings check box.

When you're done, click **OK**.

SCCM Hardware Field Mapping Dialog Box

Use this dialog box to match hardware fields on the left (as defined in Cherwell Asset Management) to SCCM fields on the right.

In most cases, use the default CAM-to-SCCM mappings based on a standard SCCM implementation. A more customized SCCM installation may require additional mappings during the configuration phase.

To set custom mapping definitions:

1. Select a CAM hardware field on the left and the SCCM field to which you want to map it on the right.
 2. Click **Map**.
 3. Repeat this for each custom mapping definition you want to configure.
 4. Click **OK**.
- Click **Unmap** to clear a mapping.
 - Click **Replace** to replace the current field mapping with one saved in another SCCM data source, or with the default mapping. For unmapping and replacing mappings, you can select single fields, or multiple fields at once using the Shift or Control keys.

To search for SCCM field names:

1. Type a string into the text box above the list on the right.
2. Click **Find Next** until you find the name you want.

You can also use the plus and minus symbols to expand and collapse the list of SCCM fields.

After you've selected an attribute (that is, not one of the items with a plus/minus), the Show Examples link is available in the CAM list whenever you have selected a name that is mapped. The example data comes from the SCCM database. If there is no data, **No examples available** is shown.

Usage Dialog Box

The parameters for the Usage command are as follows:

- /S <server>

The SQL server machine where the CAM Database is installed; if there is an instance, use server \instance.

- /d <database>

The CAM Database name.

- /U <login id>

The database user name for the CAM user.

- /P <password>

The password for the CAM user.

- /C <data source name>

The name of the data source, enclosed in quotation marks if it contains spaces.

How to...

Changing the Import Batch Size

By default, SCCM data is imported into the CAM Database in batches of 25 machines at a time.

When testing on a system dedicated to a relatively small SCCM system and Cherwell Asset Management, this has proved to be a reasonable size. Database servers with more memory and processors may be able to handle larger batch sizes to improve the time it takes to import. Do your own testing to verify which batch size is optimal in your environment. Larger batch sizes will cause resources on those systems to be heavily utilized.

If your system has become sluggish and unable to process data for processes outside of Cherwell Asset Management, you may want to reduce the batch size. Batch sizes greater than 1 require creating temporary tables in the SCCM database. If creating temporary tables in the SCCM database is not allowed, set the batch size to 1.

The batch size is stored in the CAM Database options table. To update the value, execute the following SQL command:

```
update dbo.options set optionvalue='1' where
    optionname='SCCM Batch Size'
```

Schedule the Import Process

Once you've followed the steps to configure the data source and successfully imported data, schedule the import process via the Task Scheduler (also called the Scheduler), a System Tools accessory that ships with Windows.

The following overview describes how to create a task in the Scheduler and the arguments to use when scheduling the import process. For more information on the Scheduler and how to create tasks, see [Task Scheduler](#).

To create a task in the Scheduler:

1. Under **Task Scheduler Library**, select **Cherwell Asset Management**.
2. In the Actions pane, under Cherwell Asset Management, select **Create Task...**
3. Select the Actions tab, then click **New...**
4. In the New Action dialog box, select **Start a Program** and type in the path for CAM External Connector, or click **Browse** to find it.
5. In the Add arguments box, type the necessary argument(s):
 - For hosted installations:

```
/C <data source name>
```

- For on-premises installations:

```
/S <SQL server> /d <CAM database> /U <login id> /P  
<password> /C <data source name>
```

6. Click **OK**.
7. In the Create Task dialog box, select the Triggers tab to define how often to run the task. Click **OK** when you're done.
8. Select the General tab, and type a name for the task.
9. Check the **Run with highest privileges** check box.
10. When you're done, click **OK**.

Notes:

- For on-premises installations only: The `/S` value must include the database instance if one exists (for example, `/S mysqlserver\instance`). This should be the SQL Server that is hosting the CAM Database, not the SCCM server and database.
- If the data source name includes spaces, you must enclose it in quotation marks (for example, `/C "my data source"`).

Troubleshooting

Troubleshooting: Environments with Mixed Agent Machines

In "mixed" environments, where inventory is run on some machines using the Microsoft SCCM client while others use the CAM Agent, you may run into an issue with the client machines. Once a CAM Agent has collected inventory, that data will not be overwritten with data from SCCM during the import process. When the CAM Agent is working properly, this is usually what you want. However, in some cases, the CAM Agent does not send data on a regular schedule (for example, the database or access point was moved, or the inventory was collected on demand and the agent is not installed). In these cases, you may want to use the data collected by SCCM instead. If you want to switch to using the SCCM client for a machine that also ran the CAM Agent, you should do the following:

1. In CAM Administrator, move the affected machine to the Deleted folder. This will free up an inventory license for the machine and attempt to uninstall the CAM Agent.
2. After the CAM Agent is successfully uninstalled, restore the machine from the Deleted folder. If the uninstall fails, see [Problems Uninstalling the CAM Agent](#).
3. To continue using the metering features in Cherwell Asset Management, you can open the Machine Properties dialog box and disable inventory on the Options tab. Then reinstall the CAM Agent.
4. From the CAM External Connector, import SCCM data.



Note: Mixed environments like this are rare, but can occur when organizations use the Microsoft SCCM client to track most hardware attributes and installed applications, and the CAM Agent was used in a small test environment. Typically, for any given machine, you will collect inventory data from only one source: SCCM or the CAM Agent

Troubleshooting: Machine Renaming Issues

When machines running the Microsoft SCCM client are renamed, the names are updated by the SCCM client's "Discovery Data Collection Cycle" action, which runs only once a week by default. In order to make sure that the machine names are updated during the import to Cherwell Asset Management, do one of the following:

- Initiate the "Discovery Data Collection Cycle" action on the SCCM client.
- Update the frequency that all clients run that action by adjusting this setting from SCCM: Site Database > Site Management > [site name] > Site Settings > Discovery Methods > Heartbeat method.

Troubleshooting: OS Identification Issues

By default, the Microsoft SCCM client does not collect the piece of information Cherwell Asset Management needs to determine if an operating system is 64-bit. In order to collect that information, you'll need to modify your SCCM configuration so that it collects OSArchitecture. The latest versions of SCCM include a user interface in the SCCM Management Console to facilitate collecting this information. Older SCCM versions require modifying the MOF files.

Follow these steps to modify your MOF files:

1. Add the following code to the end of the sms_def.mof file:

```
//-----
// Custom OS properties, not supported on all OSes
//-----
[ SMS_Report (TRUE),
  SMS_Group_Name ("Operating System Additional"),
  SMS_Class_ID ("CUSTOM|OS_Additional|2.0") ]

class CM_CustomOSAdditional : SMS_Class_Template
{
  [SMS_Report (TRUE), key ]      string      Name;
  [SMS_Report (TRUE)           ]
  string      OSArchitecture;
};
```

2. Add the following code to the end of the configuration.mof file:

```
//-----
// Custom OS properties, not supported by all OSes
// -----

[Union, ViewSources{"select Name, OSArchitecture from win32_operatingsy
stem"}, ViewSpaces{"\\\\.\\root\\cimv2"}, dynamic, Provider ("MS_VIEW_INSTA
NCE_PROVIDER")]

class CM_CustomOSAdditional
```

```
{  
  [PropertySources{"Name"},key ]          string Name;  
  [PropertySources{"OSArchitecture"} ] string OSArchitecture;  
};
```

3. Wait for at least one new SCCM scan on one machine to complete. (The new field will not show up in the SCCM Hardware Field Mapping dialog box until data has been collected.)
4. In the SCCM Hardware Field Mapping dialog box, select "OS Architecture (Custom)" in the left panel. In the right panel, search for "operating system additional" and select OSArchitecture under CUSTOM|OS_ADDITIONAL|2.0. Then click Map.

Advanced Topics

These topics provide information on how the CAM External Connector affects the SCCM database.

Effects on SCCM Database: Initialization

The CAM External Connector (the Connector) reads some initial information from the SCCM database so that it can perform the import process:

1. The Connector determines whether the other database is a SCCM database by checking its **sysobjects** table for the presence of two views: `v_GroupMap` and `v_GroupAttribute`.
2. To obtain the machines to import in the user-selected SCCM machine groups, the Connector reads these SCCM views: `v_Collection`, `v_ClientCollectionMembers`, and `v_CollectToSubCollect`.
3. To get the SCCM view (and datatype) for machine attribute mappings, the Connector reads the `v_GroupMap` and `v_GroupAttributeMap` SCCM views, as well as the **sysobjects**, **syscolumns**, and **systypes** tables. These system tables are used to determine the correct data types of the columns in the returned views.

The following is the query issued to obtain the default mapping information:

```
SELECT DISTINCT GM.DisplayName sccmGroupName, GM.MIFClass as sccmMIFClass,
    GAM.AttributeName as sccmAttributeName, GM.InvClassName as sqlView,
    case when st.name like '%char%' then 'string'
         when st.name = 'int' then 'number'
         when st.name like '%date%' then 'date'
         when st.name = 'bit' then 'boolean'
         else 'unknown' end as dataType
FROM v_GroupMap GM
INNER JOIN v_GroupAttributeMap GAM ON GM.GroupID = GAM.GroupID
LEFT JOIN sysobjects so on GM.InvClassName = so.name
LEFT JOIN syscolumns sc on so.id = sc.id and GAM.ColumnName = sc.name
LEFT JOIN systypes st on sc.xtype = st.xtype
```

The above sets the default machine attribute mappings; you can use the [SCCM Hardware Field Mapping Dialog Box](#) if you need to augment or override default mappings.

Once the Connector has the above information from the SCCM database, you can perform [the import](#).

Effects on SCCM Database: Import Process

After information is [collected from the SCCM database](#), you can perform or [schedule the import](#). Details of the import process are as follows:

1. All of the machines in the specified machine groups are selected. The select query also includes some basic machine information such as last hardware and software scan date (by SCCM), IP address, last user, machine domain, and SMS ID. The `v_FullCollectionMembership`, `v_R_System`, `v_GS_LastSoftwareScan`, and `v_GS_WORKSTATION_STATUS` views in the SCCM database are queried to obtain this data. The rows returned by the select query are copied into a temporary table in the CAM Database. This data and existing CAM data are used to remove any machines that do not have new inventories since the last import. If the count of new machines that are left (plus any existing inventory license in use) exceeds the number of total available licenses, some machines are removed from the import set in order to maintain compliance with CAM licensing.
2. SCCM machines are processed in batches, using bulk insert to bring over as much data as possible at a time. By default, 25 machines are processed at a time.
 - If the import batch size is greater than 1 (or less than 1, null, or non-numeric, and therefore assumed equal to the default value of 25), a temporary table is created in the **tempdb** database on the SQL Server hosting the SCCM database named **##expsscmmmap**. As each batch of machines is processed, the table is emptied, and then filled with the SCCM machine IDs (`ResourceID`) of the machines that are part of the batch being processed. This means that by default, the temporary table contains 25 records at any given time.

If the credentials used to connect to the SCCM database do not have rights to create the temporary table, the batch size is reset to 1.
 - If the import batch size is 1, no writing to the **tempdb** database is attempted and imports are performed one machine at a time; no attempt is made to create or use the temporary table.
3. Machine GUIDs (add/remove program entries) are imported using the `v_Add_Remove_Programs` SCCM view.
4. Executable file information is imported using the `v_GS_SoftwareFile` SCCM view.
5. To import all other machine attribute information, the SCCM views are mapped using the values specified in the SCCM Hardware Field Mapping dialog box.

Once the import is complete, you can configure and report on inventory data in the same way as data collected by the CAM Access Point.

Related information

[Connector_Changing_the_import_batch_size.xml#concept1365](#)