

Kelverion Automation CMDB Population Solution

Deployment Guide

Version 2.1

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1. Overview

For anyone who has a CMDB or is considering implementing a CMDB product the biggest challenge they face is not which product to buy but how am I going to populate the CMDB and ensure the data it holds is current?

Traditionally there have been two approaches to solving this thorny issue; manually enter the data or purchase an Asset Discovery engine which can populate your CMDB. Both solutions have significant challenges.

The manual approach requires significant manpower and the data accuracy is only as good as the keying in of the data and when a human last updated it.

The Asset Discovery engine brings its own challenges. Although it automates the data entry, the asset information it discovers and reports is often different to that captured by the Enterprise Management tools and you get a lot of data entered into the CMDB you do not actually need. Both situations cause a great deal of confusion for the operations staff. Also, an Asset Discovery engine places a significant extra management traffic load on the Network each time it polls to check if any Asset has changed or been added.

The ideal solution to CMDB population and management is to use the Asset data discovered by your Enterprise Management tools to populate your CMDB. This insures the data in your CMDB is the same as that seen by the Management tools and hence your Operations staff and you only gather management data once.

This CMDB Population Solution enables System Center 2012 / 2016 users to achieve this panacea and populate their CMDB with the Asset data collected by SCCM and SCOM which is entered automatically into the CMDB via Orchestrator.

This Orchestrator driven solution delivers a number of fully automated functions;

- Populate your CMDB with all New Assets discovered by SCCM and SCOM.
- Automatically update your CMDB with changes to Assets discovered by SCCM and SCOM.
- Automatically builds Relationships between Assets as discovered and defined by SCCM and SCOM.
- Deletes Assets from your CMDB when you delete them from the SCCM and SCOM management tools.

The offering discovers a range of CI types that customers typically wish to populate into their CMDB (see Appendix A), the solution can then be extended to forward any additional data points captured by SCCM and SCOM you want added into you CMDB.

Therefore, you populate your CMDB with only the data you want and none of the data you don't.

The solution comes ready built with Runbooks to automate the population of the ServiceNow CMDB but can be configured to populate any other CMDB for which integration exists including;

- BMC Remedy ARS and BMC Remedy on Demand
- BMC RemedyForce
- CA Service Desk Manager

The Kelverion CMDB Population Solution leverages the Persistent Data Store design philosophy and the Kelverion Orchestrator Integration Packs to provide a scalable and robust solution.

This solution is available as a self-installation package for customers proficient with System Center.

For customers who are less familiar with System Center 2012 / 2016, Kelverion or our partners can provide as a complete installation and configuration solution where we work with you to customise the solution for your environment.

This document provides the guidance on how to setup and configure these Runbooks in your environment. It is aimed at an experienced System Center 2012 / 2016 users. Users should also reference Microsoft supplied documentation for the System Center tools and Kelverion Integration Pack User Guides.

2. Upgrade Warning

The runbooks provided in this CMDB Population Solution are provided for installation in a clean Orchestrator environment. If you have deployed any previous versions of this Automation Solution then installing this version will overwrite any changes you have made to the currently deployed Runbooks.

You can either delete you existing Runbook deployment and then install this new Automation Solution set or manually upgrade your existing deployment.

3. Pre-Installation Information

3.1. Kelverion CMDB Population Solution Package Contents

The CMDB Population Solution Package contains the following elements:

- SQL Code
 - Kelverion Persistent Data Store creation script
 - CMDBPopulation_v2.1_PDS_LIVE.sql
 - Kelverion Solution SQL Scripts
 - clearTables.sql
 - Coalesce.sql
 - createTables.sql
 - createViews.sql
 - GetSccmWindowsServerClassCis.sql
 - GetScomWindowsServerClassCis.sql
 - RemoveTables.sql
- Runbooks
 - CMDB Population Solution Runbook Set
- XML Config
 - CMDBPopulationSolutionM2.xml
- Kelverion CMDB Population Deployment Guide

3.2. Integration Packs Required

The solutions requires the following Integration Packs:

Kelverion

- SQL Server Integration Pack
- Data Manipulation Integration Pack
- ServiceNow

Before importing any Runbooks please insure these Integration Packs are installed in Orchestrator. If you do not already have Kelverion Integration Packs they can be downloaded for evaluation from our website.

3.3. PowerShell Requirements

This version of the solution will require PowerShell remoting to be enabled. The SQL PowerShell module will also need to be installed on each runbook server.

3.4. Persistent Data Store

The Persistent Data Store (PDS) is a SQL Server database that is used by this Solution to allow all of the actions that the Runbooks take to be carried out in a robust way. The use of the database at each “step” allows us to design the Runbooks such that each Runbook is simple and can be considered a discrete unit. In programming terms it allows the Runbooks to be modular.

In your environment there may be a number of constraints that control the creation of a new database. For example the location of the log and data files, the recovery options that should be used, and the collation of the server. These requirements are typically specified by the DBA responsible for your database server. These options do not affect the Runbooks so please use the appropriate options for your environment.

Location

Typically the PDS is created on the same database instance as is used for the Orchestrator database. There is no specific requirement that this must be the case. In environments where there is very high load you may find that creating the PDS on a different database instance advantageous.

Database version

The Runbooks provided, have been tested against SQL 2012 with the latest patches and updates applied. You may need to modify the SQL Script to get it to operate in your environment or to install it on older versions of SQL Server.

Collation

The Runbooks have all been developed on systems using **Case Insensitive** collations, the specific collation setting used for your environment must be case insensitive other than that though the setting can be chosen as appropriate for your environment.

Sizing

The minimum recommended size of the PDS is 1GB.

The amount of space required will depend on the two following factors:

- Number of requests processed
- Housekeeping frequency

4. PDS Creation

Each Kerverion Automation Solution uses a set of common tables within the PDS Database and a set of tables specific to itself.

As part of each solution package you are provided with a SQL script which will generate the PDS database tables required for the solution. When the SQL scripts are executed they check for the existence of each table they required in the PDS database. If this is a new installation they will create both the Common Tables and their Solution Specific database tables. If you are already using a Kerverion Automation Solution then the script will detect that some of the tables this solution requires already exist and the script skips these table creation steps and creates only the tables which do not exist in your installation.

4.1. PDS Creation Steps

1. Create a New Database on your SQL Server called PDS_Live or connect to your existing PDS_LIVE database
2. Then execute the SQL Script provided within the PDS_Live database you created.
3. Once the PDS_Live database is created you must ensure the Orchestrator Runbook Server Service Account has as a minimum Read and Write Access permissions to the PDS_Live database.

4.2. Additional SQL Scripts \ Tables

The solution is driven by SQL scripts to gather the required CIs and prepare the data for CMDB import. The solution comes with the gather scripts set for some predefined CI information. For most customer solutions these scripts will need to be extended to gather additional CIs and data for importing.

The data is gathered into tables for each data source and then collated into a final set of tables for importing to the CMDB. If additional CIs are required, then additional tables would be required to extend the solution.

Example Data:

machineID	computerName	computerType	computerStatus	isVirtual	HostServerName	manufacturer	operatingSystem
16777219	GATEWAY-2016	Server	OK	NULL	NULL	Xen	Microsoft Windows Server 2016 Datacenter
16777220	SQL-2016	Server	OK	NULL	NULL	Xen	Microsoft Windows Server 2016 Datacenter
16777222	SCO-SEC-R2	Server	OK	NULL	NULL	Xen	Microsoft Windows Server 2016 Datacenter
16777223	SCO-2016	Server	OK	NULL	NULL	Xen	Microsoft Windows Server 2016 Datacenter
16777224	SCOM-2016	Server	OK	NULL	NULL	Xen	Microsoft Windows Server 2016 Datacenter

5. Solution Configuration

5.1. System Center Orchestrator Configuration

To use the Solution, you must perform a series of simple configuration steps to make the Runbooks operate in your environment. These configuration settings are made from the Orchestrator Options menu for each of the products listed below.

Configuration	Values
Integration Pack: KA Data Manipulation Configuration Name: CMDB Population Solution v2.0	Type: XML Specification Specification Path: C:\Orchestrator\Cmdb Population Solution v2\CMDBPopulationSolutionM2.xml
Integration Pack: KA ServiceNow Configuration Name: ServiceNow	Set the URL and credentials required to connect to your ServiceNow instance
Integration Pack: KA SQL Server Configuration Name: PDS_LIVE	Set the connection properties for your solution database (PDS)

5.1.1. Variables

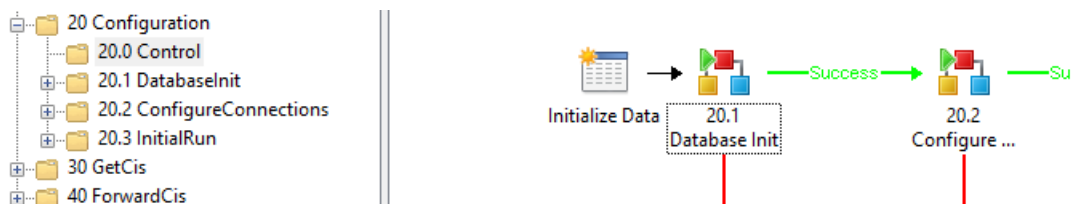
All variables for the solution are in the CMDB Population Solution v2.0 variables folder. In the folder are some sub folders with variables for the solution:

Folder	Variables	Description
Source Control	CMDB.Population.IncludeSCCM	Set the value to Include if you wish to import SCCM data into the CMDB. Set the value to Exclude if you do not want to import SCCM data into the CMDB
	CMDB.Population.IncludeSCOM	Set the value to Include if you wish to import SCOM data into the CMDB. Set the value to Exclude if you do not want to import SCOM data into the CMDB
	CMDB.Population.Method	Set to which method you want to use for transferring the data to ServiceNow. Valid Values: <ul style="list-style-type: none"> • Direct • ECC • ImportSet
	CMDB.Population.SCCM.Database	If using SCCM to collect information. Set this to the SCCM database name. e.g. CM_XXX
	CMDB.Population.SCCM.schema	If using SCCM to collect information. Set this to the SCCM database schema. e.g. dbo

	CMDB.Population.SQLSQLServer	Set this to the name and instance for the SCCM SQL server. e.g. SQL\Instance
	CMDB.Population.SCOM.Database	If using SCOM to collect information. Set this to the SCOM database name. e.g. Orchestrator
	CMDB.Population.SCOM.schema	If using SCOM to collect information. Set this to the SCOM database schema. e.g. dbo
	CMDB.Population.SCOM.SQLServer	Set this to the name and instance for the SCOM SQL server. e.g. SQL\Instance
SQL	CMDB.Population.SQL.Instance	Set this to the name and instance for the PDS SQL server. e.g. SQL\Instance
	CMDB.Population.SQL.ScriptPath	Set this to the path of the SQL scripts for the automation solution on the runbook server. Create the folder and copy the contents of the 'Scripts' to this location. e.g. C:\Orchestrator\CMDB Population Solution v2.0\
	CMDB.Population.SQL.ServiceAccount.Password	Set this to the service account password for access to the PDS
	CMDB.Population.SQL.ServiceAccount.Username	Set this to the service account username for access to the PDS

5.1.2. Initialise the Database

The Solution is set to run on a monitor, but the first run should be done with runbook '20.0 Control' to initialise the database tables and configure them for the solution.



You can check the configuration in the SQL table CMDBPopulationM2.Settings as shown in the example data.

Example Data:

scomDatabaseServer	scomDatabase	scomSchema	scomDatabaseServer	scomDatabase	scomSchema	metaDatabaseServer
[SQL-2016\PROD16]	[CM_LAB]	[dbo]	[SQL-2016\PROD16]	[OperationsManager]	[dbo]	[SQL-2016\PROD16]

5.2. ServiceNow Configuration

To allow Orchestrator access to ServiceNow you will need the following:

- Create a user with admin access, or alternatively READ/WRITE access to the tables:
 - [cmdb_ci_computers]
 - [cmdb_ci_disk]
 - [cmdb_ci_network_adapter]
 - [ecc_queue]

And assign the role

- web_service_admin
- import_admin

6. Installing Temporary License of Kelverion Integration Packs

To run the solution you will need a full or evaluation licence key for Kelverion Integration Packs.

The licence files need to be copied into a folder called C:\Program Files (x86)\Kelverion Automation\Licenses. If this folder does not already exist on your system please first create the folder C:\Program Files (x86)\Kelverion Automation\Licenses and then copy the attached files into it.

The license key is regularly updated as it includes a specific license end date after which the product will no longer work. If you have a license or date format error on trying to run this product please contact info@kelverion.com detailing date of download and error details.

To purchase a license please contact your Kelverion representative, reseller or email info@kelverion.com

7. Notes

8. Appendix A

CMDB Population Solution standard data points captured.

Class Computer

Property	Source SCCM	Source SCOM
Computer Name	✓	
Computer Type	✓	
Computer Status	✓	
Is Virtual		✓
Host Server Name		
Manufacturer	✓	
Operating System	✓	
Memory	✓	
Description	✓	
Number of Disks		✓
Number of Interfaces		✓
Organizational Unit		✓
Number of Physical Processors		✓
Number Of Logical Processors		✓
Network Name		✓
IP Address		✓
Netbios Name		✓
DNS Name		✓
Display Name		✓
Offset to GMT		✓

Class Disk

Property	Source SCCM	Source SCOM
Computer Name	✓	✓
Disk Name	✓	✓
Caption	✓	
Disk Size	✓	✓
Description	✓	✓
Device Id	✓	✓
Index	✓	✓
Install Date	✓	
Interface Type	✓	✓
Manufacturer	✓	✓

Class Logical Disk

Property	Source SCCM	Source SCOM
Computer Name	✓	✓
Disk Name	✓	✓
Caption	✓	
Description	✓	✓
Device	✓	✓
File System	✓	✓
Free Space	✓	
Install Date	✓	
Name	✓	✓
Purpose	✓	
Size	✓	✓
Device Status	✓	
System Name	✓	
Time Key	✓	
Volume Name	✓	✓
Volume Serial Number	✓	

Class Network Interface

Property	Source SCCM	Source SCOM
Computer Name	✓	✓
Interface Name	✓	✓
Caption	✓	
Description	✓	✓
DNS Host Name	✓	
DNS Domain	✓	✓
Instance Key	✓	
Index	✓	✓
IP Address	✓	✓
IP Subnet	✓	✓
IPX Address	✓	
IPX Enabled	✓	
Mac Address	✓	✓
MTU	✓	
Service Name	✓	
Revision ID	✓	

Class Network Processor

Property	Source SCCM	Source SCOM
Computer Name	✓	✓
Processor Name	✓	✓
Address Width	✓	✓
Caption	✓	
Description	✓	✓
Device ID	✓	✓
Family	✓	✓
Is 64 Bit	✓	
Install Date	✓	
Instance Key	✓	
Is Hyper Thread Capable	✓	
Is Hyper Thread Enabled	✓	
Is Virtualization Capable	✓	
Manufacturer	✓	✓
Max Clock Speed	✓	✓
Name	✓	
Number of Cores	✓	
Number of Logical Processors	✓	
Processor ID	✓	
Role	✓	
Processor Status	✓	
Revision ID	✓	
Speed	✓	✓
System Name	✓	
Version	✓	✓

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