

flexera

ServiceNow ScopedApp

Integration Guide for Normalization



Legal Information

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1

Scoped Application Overview

This guide contains information about the ServiceNow Scoped Application and its integration with Data Platform V5.5.16 Normalize. This guide contains the following chapters:

- [Scoped Application Overview](#)
- [Scoped Application Integration](#)
- [Normalization and the Scoped Application](#)

About the ServiceNow Scoped Application Integration

The purpose of the ServiceNow Scoped Application is to enable customers to export ServiceNow's discovery data for computers, network gear, and software to Flexera Data Platform to be normalized, and then to import the normalized data into ServiceNow.

- The version of ServiceNow that introduces the Scoped Application is London.
- The ServiceNow Scoped Application can also import other discovery sources that have been normalized by Data Platform, such as SCCM.
- The integration can be used by customers with Data Platform Normalize 5.5.16.
- The Scoped Application uses SAM Foundation.

The ServiceNow Scoped Application integration can be used to do either of the following tasks or a combination of both tasks:

- Export ServiceNow's computers, network gear, and software data to be normalized by Flexera Data Platform Normalize and import the normalized data into ServiceNow.
- Import normalized data for computers, network gear, software discovery models, software installations, disks, and NICs from non-ServiceNow data sources through Flexera Data Platform Normalize.

The ServiceNow Scoped Application integration can be used to do a combination of the listed tasks with the data being aggregated and deduplicated across data sources before the normalized data is imported by ServiceNow.

ServiceNow Scoped Application introduces improvements

The ServiceNow Scoped Application introduces the following benefits over the legacy Update Set integration between ServiceNow and Data Platform.

- Easy configuration.
- No requirement for update sets.
- Uses the concept of discovery model, which enables ServiceNow to submit one record that maps to multiple entities, for example, ABC software is installed on 200 devices but only one record for ABC software is submitted for normalization.
- Uses SAM Foundation to enable faster and more efficient normalization.
- ServiceNow Scoped Application uses the CSV file format for data export, instead of the archive file (.zip) format.

Prerequisites

- SAM plugins are required:
 - Software Asset Management Core (com.snc.sam.core)
 - Software Asset Management Foundation (com.snc.sams)
- Data Platform Normalize 5.5.16 is required for the ServiceNow Scoped Application.



Note •

Normalize V5.5.16 is compatible with earlier versions of ServiceNow that use the update set.

Limitations

The following list describes some of the limitations for the integration:

- This integration only supports one normalize job with ServiceNow as discovery data source.
- ServiceNow only imports data from Normalize job where ServiceNow discovery has been defined as one of the data sources.
- This version of the Scoped Application and Normalize will only support Normalize that uses Microsoft SQL Server as a back-end database.

Installing the ServiceNow Scoped Application

Download and install the ServiceNow Scoped Application from the ServiceNow App Store (https://store.servicenow.com/sn_appstore_store.do#!/store/home).

1. Go to the ServiceNow Store and select the Flexera Data Platform Scoped Application.
2. Log in with your credentials and complete the request.
3. When ServiceNow sends confirmation, you download the Scoped Application to your ServiceNow instance.
4. Log in to your ServiceNow instance.
5. Go to **System Applications/Plugins** on the application navigation menu and install any required CMDB plugins by selecting the Plugin, and then click **Activate** under **Related Links**.
6. Navigate to **System Applications/Applications**.
7. Select the **Scoped Application** and then click the **install** button.

Dependencies and Roles

The **x_fl_normalize.user** role must be assigned to the user account that is used to access the Normalize application and the following application modules:

- Setup
- Normalize Status
- ISET Normalize Manufacturers
- ISET Normalize Hardware Models
- ISET Normalize Software Models
- ISET Normalize Computers
- ISET Normalize Disks
- ISET Normalize NICs
- ISET Normalize Software Discovery models
- ISET Normalize Discovery Model
- ISET Normalize Software Ignore
- ISET Normalize NetGear



Task

To configure a ServiceNow Scoped Application user to access Data Platform Normalize with the appropriate access levels, do the following tasks:

1. Log in to the Scoped Application as system administrator.
2. Click **System Administrator** on the top right of the screen to open a menu.
3. Select **Elevate Roles** to open the **Elevate Roles** screen.
4. Select the **security_admin** check box to insert a tick in the check box, and then click **OK**.
5. On the navigation menu, click **User Administration > Users**.
6. Select the user that you want to assign the **x_fl_normalize.user** role to.
7. Click the **Roles** tab.
8. Click the **Edit...** button to open the roles list.
9. Select the **x_fl_normalize.user** role, and then click the right arrow (>) to add the role to the **Contains Roles List**, and click **Save**.

Configuring the ServiceNow Scoped Application



Task

Take the following steps to configure the Scoped Application

1. From the Navigation menu, click **Normalize > Setup**.
2. Type the MID server name in the **MID server** field.
The MID server must have access to Data Platform Normalize.
3. On the **ServiceNow Configuration Items** tab, select the **Normalize ServiceNow CIs** check box to insert a check mark that enables the normalization of ServiceNow data.

4. Type a target path in the **Target path on MID server** field or leave this field empty.
The Target path on MID server tells the MID server where to export data relative to the MID server. Make one of the following choices:

- To store the data in the export directory of the MID server, leave this field empty.
or
- Specify a folder on the MID server.



Note •

You can't export data outside of the MID server file structure.

5. Click the **Database Connection** tab to configure the database.
 - a. Enter the database type and server name.
 - b. Use integrated authentication or provide SQL user credentials to access the database.
 - Select the **Use Integrated authentication** to use integrated authentication for accessing the Data Platform database.
The MID server must be running as a domain user to access the Data Platform database so that it can pull the normalized data from Data Platform to ServiceNow.
or
 - Clear the **Use Integrated authentication** check box to configure SQL credentials to access the database.



Note • *This version of Scoped Application and Normalize only supports Normalize that uses Microsoft SQL Server as a back-end database.*

6. Click **Properties** on the navigation menu to configure normalization properties.
Configure the following options:
 - Select the first **Yes** check box to run a cleanup script if you want ServiceNow to clean up data when Normalization is done.
The integration creates new hardware models and associates discovered hardware with those models. The old association is no longer relevant and the cleanup script removes orphaned data that was created by discovery, which has no relevant associations
 - Select the second **Yes** check box when you want to reclassify data that Data Platform determines is a more appropriate classification than was determined by ServiceNow discovery.

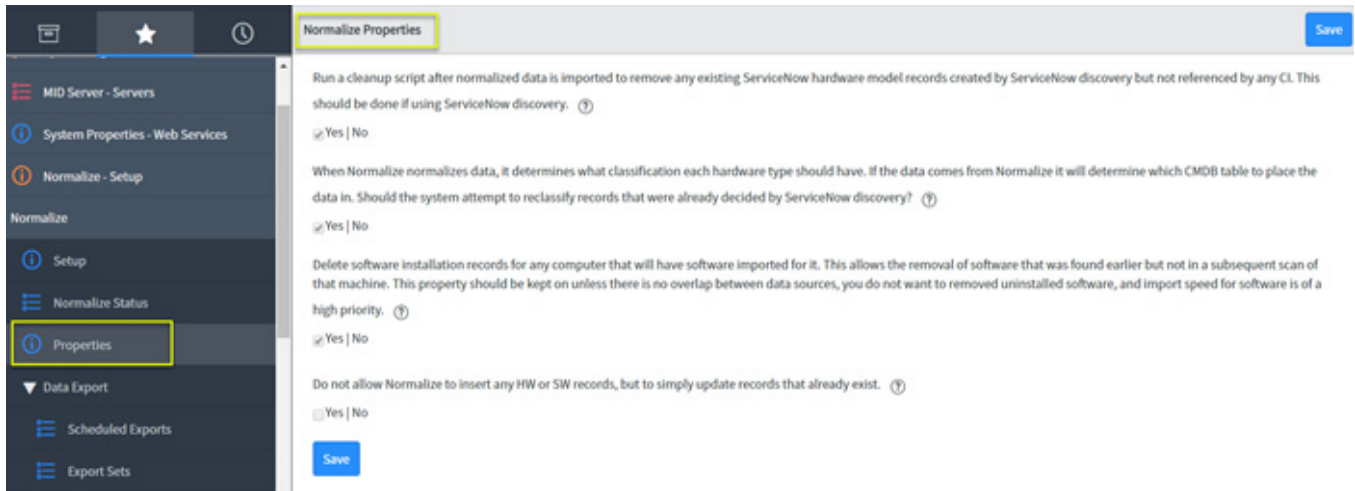


Note •

*New data that is introduced by Data Platform to ServiceNow is classified as **Integration Determined**.*

- Select the third **Yes** check box to update software installation changes from the previous installation records.
A reason for selecting the **No** check box might be because the data source is not ServiceNow, or you don't want to remove records of previously installed software that was uninstalled.

- Select the fourth **Yes** check box to enable software and hardware updates only and to prevent new records from being added.



2

Scoped Application Integration

Configuring the Scoped Application Integration in Data Platform

Take the following steps to configure the ServiceNow Scoped Application in Data Platform Normalize:



Task

1. To add ServiceNow as a discover source when using the Scoped Application, select the **ScopedApp** check box to insert a check mark as shown in the following image.

Normalize Settings

General Data Source

Specify data source and location of discovery tool.

API

ServiceNow Instance URL:

Username:

Password:

ServiceNow Work Folder (UNC Path)

Folder Path:

User (domain/username):

Password:

ScopeApp

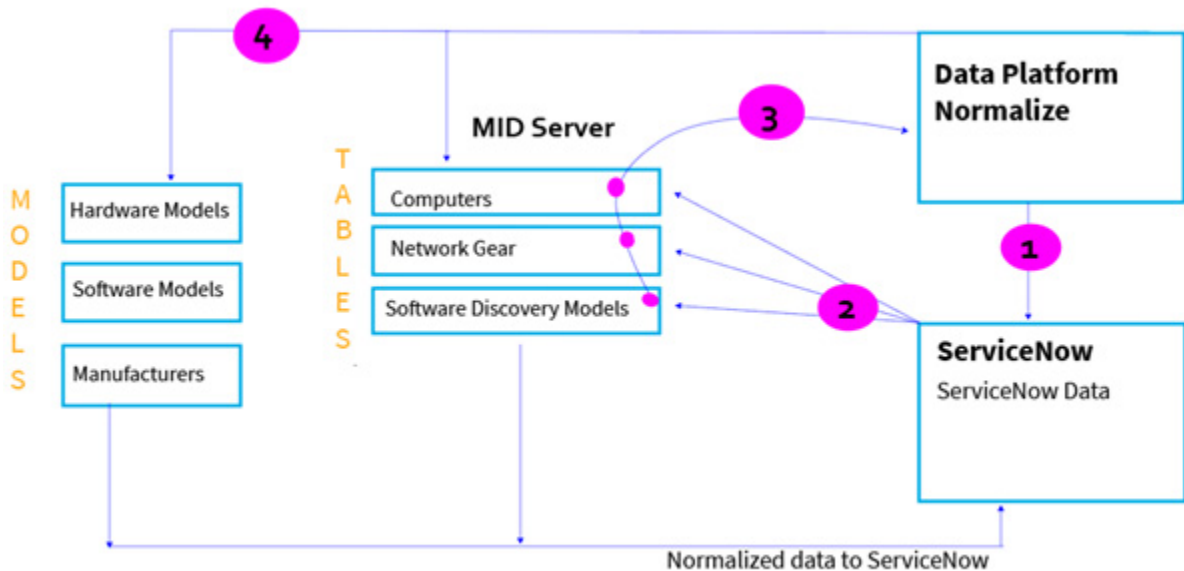
2. Add the **ServiceNow instance URL** and credentials.

3. Add the **ServiceNow Work Folder (UNC Path)** and credentials.
This folder corresponds with the Target path on the MID server that you configure in the Scoped Application.

How the integration works

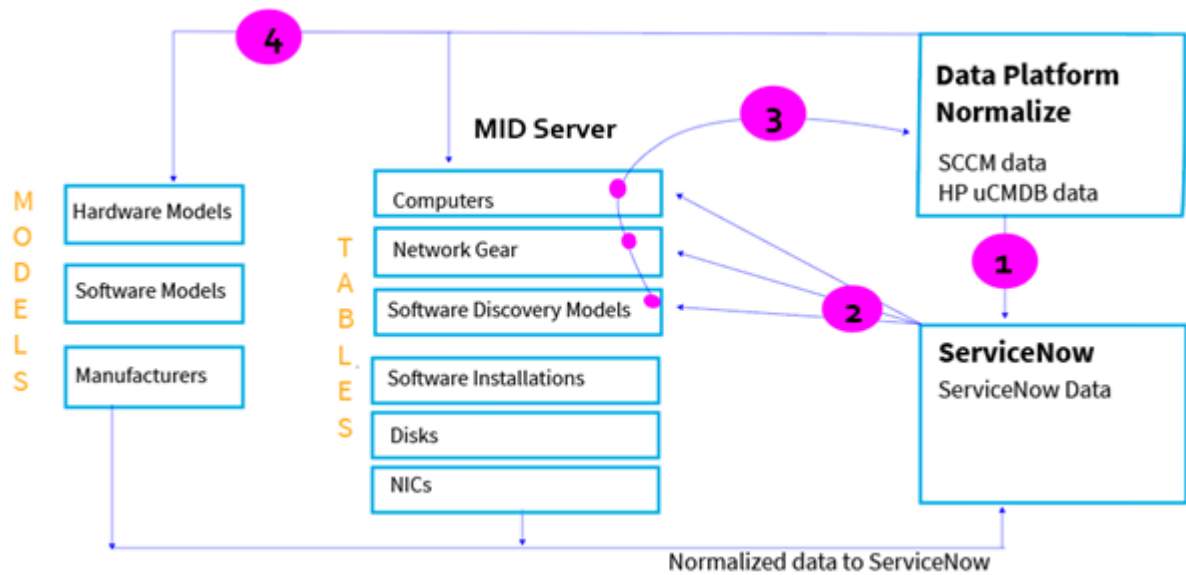
The following examples show a high-level view of the interactions between ServiceNow and Data Platform during the normalization process.

Figure 2-1: ServiceNow data for normalization



1. Data Platform Normalize makes a SOAP call to ServiceNow for ServiceNow discovery data.
2. ServiceNow exports Computers, Network gear, and Software data to the MID server.
3. Data Platform imports and normalizes the ServiceNow data.
The computers, network gear, and software discovery model tables are updated.
Normalize creates models for software, hardware, and manufacturers and associates them with the ServiceNow tables.
 - Hardware models are associated with computers.
 - Manufacturers are associated with computers and network gear.
 - Software models are not associated with software discovery models at this stage of normalization. The relationship is made (by using SAM Foundation) during the ServiceNow reconciliation that follows the import of normalized data.
4. Normalize uses SOAP to send a notification to ServiceNow stating that the normalized data is ready for import to ServiceNow.
Normalized data is send back to ServiceNow where it is reconciled and updated in ServiceNow.

Figure 2-2: ServiceNow data and other data sources for normalization



1. Data Platform Normalize makes a SOAP call to ServiceNow for ServiceNow discovery data.
2. ServiceNow exports Computers, Network gear, and Software discovery models data to the MID server.
3. Data Platform imports the ServiceNow data and aggregates the ServiceNow and other data sources. Normalize creates models for software, hardware, and manufacturers and associates them with the computers, network gear, software discovery models, software installations, disks, and NICs tables. For non-ServiceNow data sources, new records are added to the tables when new entities are discovered, such as disks, or computers.



Note •

Normalize deduplicates data between the data sources but does not deduplicate within a data source.

4. Normalize uses SOAP to send a notification to ServiceNow stating that the normalized data is ready for import to ServiceNow. Normalized data is imported by ServiceNow and tables are updated during the final reconciliation by ServiceNow.

3

Normalization and the Scoped Application

Normalization and the Scoped Application

There are several changes that are introduced to the discovery and normalization process by using the ServiceNow Scoped Application.

The changes fall under the following headings:

- User Interface
- Communication between Data Platform and ServiceNow
- ServiceNow data import
- Normalization algorithm
- Database publish
- User Notes
 - Limitation
 - Compatibility
 - Database limitation
 - Data model

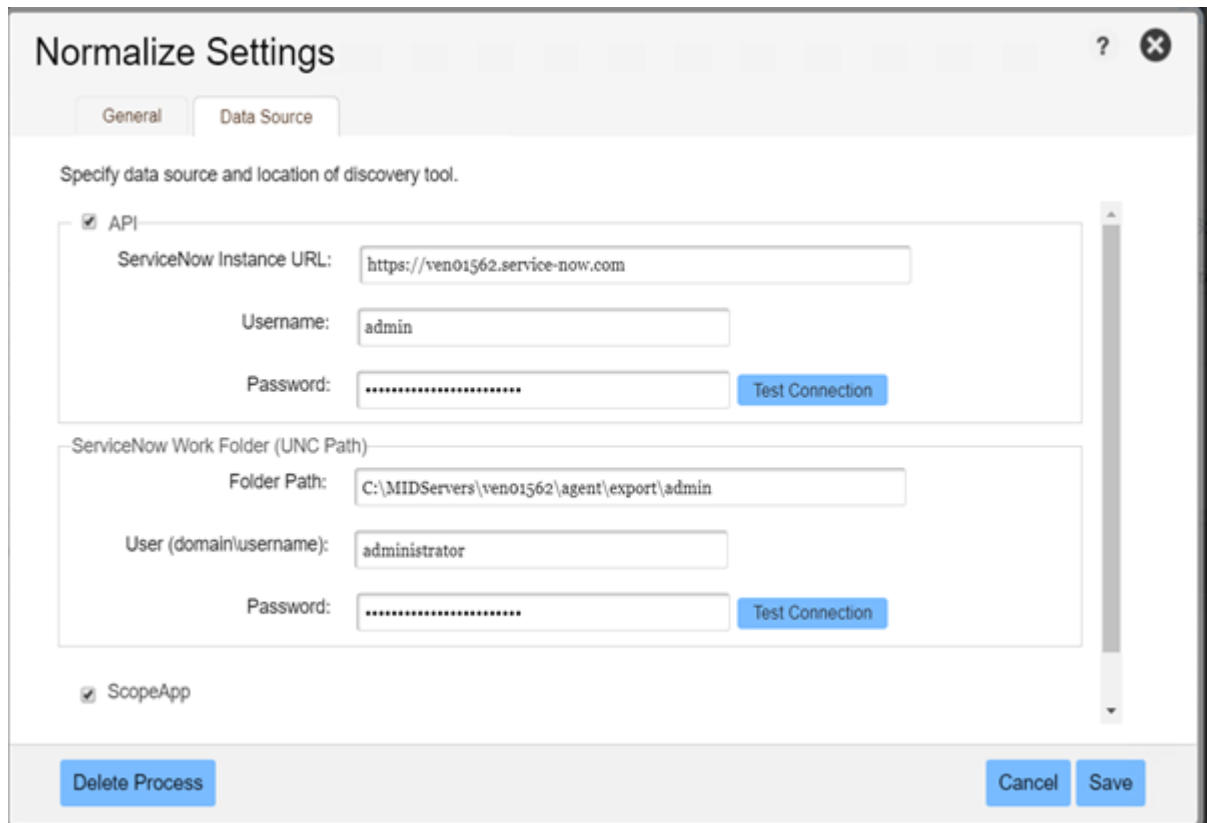


Advanced Note • By default, the Scoped Application check box is not checked, which enables backwards compatibility with earlier ServiceNow versions.

User Interface

The Scoped Application option is available on the **Data Source** tab of the **Normalize Settings** screen. To add the Scoped Application as a discovery data source to be normalized, select the **ScopedApp** check box to insert a check mark and then configure details for data to be imported and exported to the ServiceNow Scoped Application.

Figure 3-3:
 Normalize settings screen



Communication between Data Platform and ServiceNow

The Scoped Application imports and exports data from Normalize by using WSDL (web services definition language).

WSDL is required to export discovery data from the ServiceNow Scoped Application to send normalized data to ServiceNow, and to exchange status messages between Data Platform and the ServiceNow Scoped Application.

The following tables show the web services interactions between Data Platform Normalize and ServiceNow (SN).

Table 3-1 • Export CIs

Type	Details
Purpose	Request ServiceNow to export CIs and software records to a flat file.

Table 3-1 • (cont.)Export Cls

Type	Details
WSDL	https://ven01305.service-now.com/x_fl_normalize_1-ExportCls.do?WSDL
Endpoint	https://ven01305.service-now.com/x_fl_normalize_1-ExportCls.do?SOAP
Input Parameters	None
Return	<p>Parameters: Result</p> <ul style="list-style-type: none"> ● Purpose: Job ID of the export job ● Type: String ● Example: NORSTAT0001018

Data Platform makes requests to ServiceNow to export Cls, which triggers exports of its configuration items and software records to a flat file. This web service is invoked one time for every normalization process.

Table 3-2 • Export Status

Type	Details
Purpose	Get the status of the export job form ServiceNow.
WSDL	https://ven01305.service-now.com/x_fl_normalize_2-ExportStatus.do?WSDL
Endpoint	https://ven01305.service-now.com/x_fl_normalize_2-ExportStatus.do?SOAP
Input Parameters	<p>Job ID</p> <ul style="list-style-type: none"> ● Purpose: Job ID of the export job that was returned in the previous step ● Type: String ● Example: NORSTAT0001018
Return Parameters	<p>Result</p> <ul style="list-style-type: none"> ● Purpose: Status of the export job ● Type: String ● Possible values: exporting, mid_server_processing, cancel_requested, cancelled, completed, completed_with_errors, error

This is used to query the ServiceNow status of the exported job. This web service is invoked every sixty seconds until the data export is complete.

Table 3-3 • Import from Data Platform

Type	Details
Purpose	Lets ServiceNow know that the normalization results are ready and that it can start the import from the Data Platform database.
WSDL	https://ven01305.service-now.com/x_fls_normalize_2-ExportStatus.do?WSDL
Endpoint	https://ven01305.service-now.com/x_fls_normalize_2-ExportStatus.do?SOAP
Input Parameters	None
Return Parameters	<p>Result</p> <ul style="list-style-type: none"> ● Purpose: Job ID of the export job ● Type: String ● Example: NORSTAT0001018

This web service tells ServiceNow that the normalization data results are ready for import. This web service is invoked once for each normalization process.

Table 3-4 • Status of import from Data Platform

Type	Details
Purpose	Queries ServiceNow to get the status of the import job.
WSDL	https://ven01305.service-now.com/x_fls_normalize_4-importFromDataPlatformStatus.do?WSDL
Endpoint	https://ven01305.service-now.com/x_fls_normalize_4-importFromDataPlatformStatus.do?SOAP
Input Parameters	<p>JobID</p> <ul style="list-style-type: none"> ● Purpose: Job ID of the export job that was returned in the previous step ● Type: String ● Example: NORSTAT0001018

Table 3-4 • (cont.) Status of import from Data Platform

Type	Details
Return Parameters	<p>Result</p> <ul style="list-style-type: none"> ● Purpose: Status of the import job ● Type: String ● Possible Values: completed, importing, error, cancelled, completed_with_errors <p>Result_message</p> <ul style="list-style-type: none"> ● Detailed result message

ServiceNow is queried for the status of the import job until the job is complete.

Data Import

Only one ServiceNow job is permitted to be normalized at any one time. The ServiceNow job can have other data sources added to the job, such as SCCM.

The following image shows the **Normalize** screen that has one ServiceNow job and two other data sources to be normalized.

Figure 3-4: Normalize with one ServiceNow job

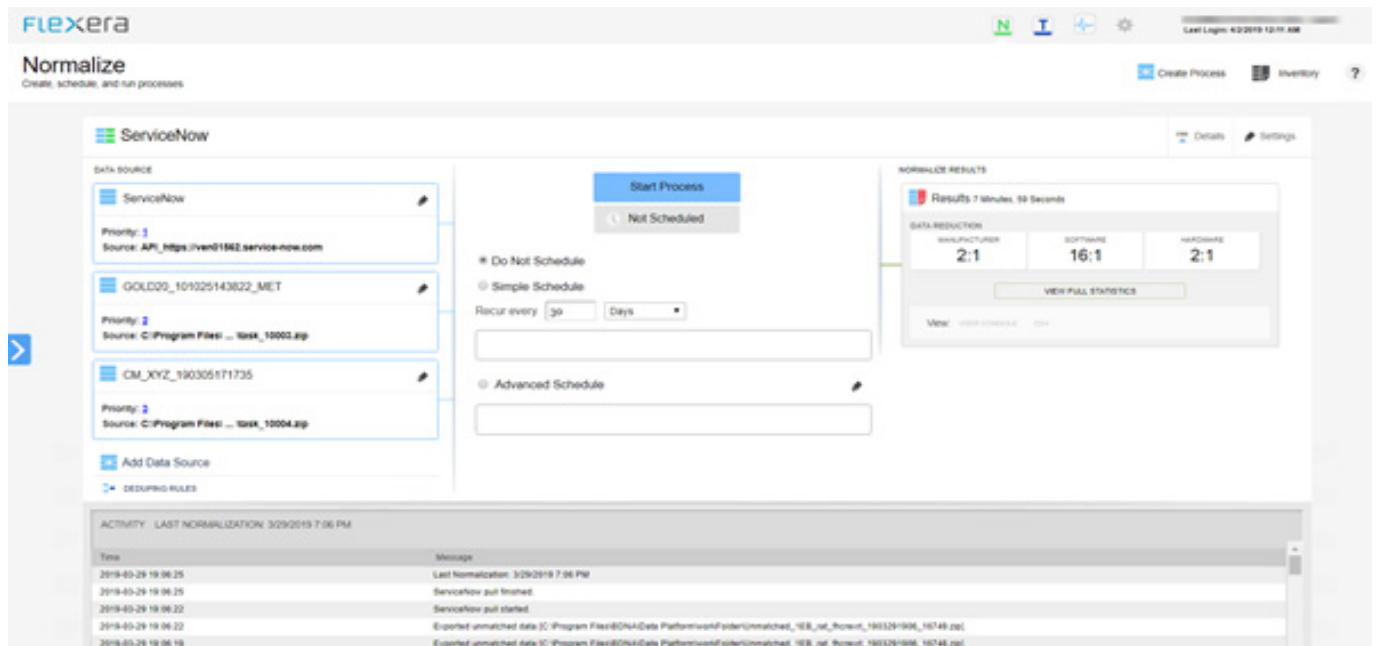


Table 3-5 shows data formats and file names that are used in the data export from ServiceNow Scoped Application.

The previous ServiceNow integration used an archive file (.zip) format for data export, whereas the new Scoped Application integration uses a text file (.csv) format. The Scoped Application exports its data to the MID-server by using CSV file (.csv) format.

The following table shows the changes that are introduced with the new ServiceNow CSV files:

Table 3-5 •

Table Name	File Name	Description	Before Change	After Change
cmdb_ci_computer	n/a	csv file name change	cmdb_ci_hardware.csv	cmdb_ci_netgear.csv
cmdb_sam_sw_install	n/a	csv file name change	cmdb_sam_sw_install.csv	cmdb_sam_sw_install.csv
cmdb_ci_computer	cmdb_ci_computer.csv	csv file name change	SYS_ID	SYS_ID
cmdb_sam_sw_install	cmdb_sam_sw_discovery_model.csv	file column label change	INSTALLED_ON_CORRELATION_ID	SYS_ID
cmdb_sam_sw_install	cmdb_sam_sw_discovery_model.csv	file column removed	INSTALLED_DATE	n/a
cmdb_sam_sw_install	cmdb_sam_sw_discovery_model.csv	new file column	n/a	NORM_EDITION
cmdb_ci_hardware	cmdb_sam_sw_discovery_model.csv	file column label change	CORRELATION_ID	CORRELATION_ID



Advanced Note • Data Platform Normalize accepts only one ServiceNow job at a time. The ServiceNow job can include other data sources such as SCCM.

Normalization algorithm update for ServiceNow Scoped Application data

The ServiceNow Scoped Application integration introduces the following normalization changes for mapping ServiceNow data in Normalize:

- The concept of model is introduced where only unique records are submitted to Normalize. For example, if there are one hundred machines in the network and all machines have “Microsoft Office” installed, only one software record for “Microsoft office” is exported for normalization.

- Previously mapped models are not resubmitted for normalization.

The following database views are new in Data Platform Version 5.5.16, and are used for this ServiceNow Scoped Application integration:

Table 3-6 • Database view names and descriptions

Database View Name	Description
snow_computer	List of unique computers in the normalize job.
snow_model_sw	List of unique mapped software models submitted for normalization by ServiceNow that might map to multiple computers. For example, If twenty computers have Microsoft Office 2016 installed, only one model that represents this software is sent for normalization.
snow_model_hw	List of unique hardware models submitted for normalization by ServiceNow. A unique hardware model might map to several devices but only one model is submitted for normalization.
snow_manufacturer	List of unique manufacturers from mapped software, hardware, CPU, or network equipment.
snow_netgear	List of unique network equipment found in the normalize job.
snow_disk	List of disk storage devices from the normalized computers.
snow_nic	List of network adapters on the normalized computers.
snow_discovery_model_sw	List of raw software records from discovery source together with its mapped Technopedia record, for example, Office 10.1.3 is mapped to Office 10.1.
snow_sw_ignore	List of software records from ServiceNow discovery sources that are mapped but are marked as irrelevant/ignore by Technopedia catalog because of their relevance determination.
snow_sw_install	List of software records and their corresponding computers on which the software is installed. This database view is not applicable to ServiceNow discovery.

The following notes describe the database views in more detail:

- snow_sw_ignore only includes ignored software from ServiceNow discovery sources.
- ServiceNow only returns the software model to be normalized and not the computer that it is associated with.
- snow_sw_install provides a mapped normalized result from discovery sources that are not ServiceNow, such as SCCM.
- snow_discovery_model_sw contains all mapped records from the normalize job, such as ServiceNow, and SCCM.
- snow_model_sw provides unique model from Technopedia, and it does not include any raw discovery records.

Important User Notes

Limitations

This integration only supports one normalize job with ServiceNow as discovery data source.

ServiceNow only imports data from Normalize job where ServiceNow discovery has been defined as one of the data sources.

This version of Scoped Application and Normalize will only support Normalize that uses Microsoft SQL Server as a back-end database.

Data Model

Previous integrations had data extraction queries (SQL statements) defined in the ServiceNow update set.

The Scoped Application delegates the data extraction queries to Normalize by creating the database view inside Normalize Publish.

Compatibility with earlier versions

Data Platform Normalize V5.5.16 is required for the Scoped Application.

Normalize V5.5.16 is compatible with earlier versions of Normalize that use the ServiceNow update set.

New database views are required in Normalize publish:

The Scoped Application delegates the data extraction queries to Normalize by creating the database view inside Normalize

Table 3-7 • Database view names and descriptions

Database View Name	Description
Technopedia OnPrem SQL Computer	snow_computer
Technopedia OnPrem SQL Disk	snow_disk
Technopedia OnPrem SQL Manufacturer	snow_manufacturer
Technopedia OnPrem SQL Model (HW)	snow_hw_model
Technopedia OnPrem SQL Model (SW)	snow_sw_model
Technopedia OnPrem SQL Network Gears	snow_netgear
Technopedia OnPrem SQL NIC	snow_nic
Technopedia OnPrem SQL Software Install	snow_sw_install
Technopedia OnPrem SQL SW Ignore	snow_sw_ignore

Publish.

ServiceNow data exports

ServiceNow exports data in the following order according the schedule that's determined by Normalize:

- Computer
cmdb_ci_computer table
- Netgear
cmdb_ci_hardware table
- Software Discovery Model:
cmdb_sam_sw_discovery_model table

ServiceNow exported data tables and fields

The following table shows the fields and tables that are used in the export of ServiceNow data to Data Platform:

Table 3-8 • Data that is exported from ServiceNow

ServiceNow Exports	Table	Fields
Computer	cmdb_ci_computer	name,dns_domain, sys_id,os, os_service_pack,os_version, serial_number,manufacturer, cpu_speed, cpu_name,cpu_manufacturer, last_discovered, ram, cpu_count, model_id
Netgear	cmdb_ci_hardware	name, dns_domain,sys_id,serial_number, manufacturer, last_discovered, model_id
Software Discovery Model	cmdv_sam_discovery_model	publisher, display_name, version, norm_edition, sys_id

Transform Maps

To view the tables that are used in the transformation of data from Data Platform tables to ServiceNow tables, view transform maps from the ServiceNow navigation menu by clicking **Data Import > Transform Maps**

For example, Data Platform **x_fl_normalize_iset_normalize_computer** source table transforms to the **cmdb_ci_computer table** in ServiceNow.