

Normalize discovered software for effective software asset management

Improve your software entitlement reconciliation accuracy

What's in this Success Playbook

You'll find that it's nearly impossible to effectively manage software assets without first normalizing disparate software discovery data. With ServiceNow® Software Asset Management (SAM), you have a software asset management process that reduces normalizing discovery data. This best practice guide will help you get the most out of software normalization by:

- Explaining SAM normalization processes and the importance of normalization in the software asset management ecosystem
- Helping you establish smart manual normalization processes, including determining how much effort you should put into normalizing outliers and selecting publishers that might require special attention

Key takeaways

The most important things to know

While SAM automates the normalization process itself, you can take proactive steps to improve your “hit rate” (normalization percentage) fast. This includes establishing smart manual normalization processes, including determining how much effort you should put into normalizing outliers and selecting publishers that might require special attention.

The payoff of getting this right

Normalization improves the accuracy and efficiency of reconciliation for your software entitlements. This lets you prepare for and complete software audits with more confidence that your counts are accurate and that they match the entitlement records.

What you need to get started

Prerequisites

- SAM Professional (Jakarta release or later)
- ServiceNow CMDB
- Software discovery data – Use either: SCCM for Windows desktops/laptops; ServiceNow Discovery for data center; or Jamf for Mac desktops/laptops
- Opt in to the Software Asset Management content service

When you should start this activity

Start this as you [implement ServiceNow Software Asset Management](#).

Playbook overview

Follow these stages to achieve business-smart customization:

Stage 1 – Understand software normalization

Stage 2 – Work with your discovery data

Stage 3 – Prioritize what to normalize manually

Terms and definitions

To avoid confusion, this guide refers to the ServiceNow Software Asset Management application as **SAM** and uses **software asset management** when referring to the overall discipline, including processes and personas.

Discovery models are created automatically by SAM for each version of discovered software in your network environment. These differ from **software models**, which you create to manage software products through the SAM lifecycle from request through disposition. For example, you use the software model in a user request and procurement request and to track lifecycle statuses. You enable reconciliation by linking purchased software entitlements (software assets) to the software model.

Discovered publisher, **discovered product**, and **discovered version** refer to the raw values reported by your software discovery applications. During the normalization process, SAM populates the **Publisher**, **Product**, **Version**, and **Edition** fields with normalized values, if found.

Stage 1 – Understand software normalization

Normalization is a key part of reconciliation, but don't try to make it perfect.

KEY INSIGHT

- Don't get fixated on hit rates— normalization is an intermediate reconciliation goal.

Have you ever worked feverishly to prepare for a software audit only to be slowed by the lack of a definitive list of discovered publishers, products, and versions? ServiceNow SAM software normalization delivers that definitive inventory.

SAM normalization processes match software installation data—aggregated into discovery models—to a central content library of recognized software. In the process, SAM adds normalized **Publisher**, **Product**, and **Version** values to the discovery model. SAM then uses these normalized discovery models to reconcile installed software to the entitlements related to your software models.

Normalization and the software asset management process

To understand where normalization fits in the software asset management process, review Figure 1, which shows an overview of its activities.

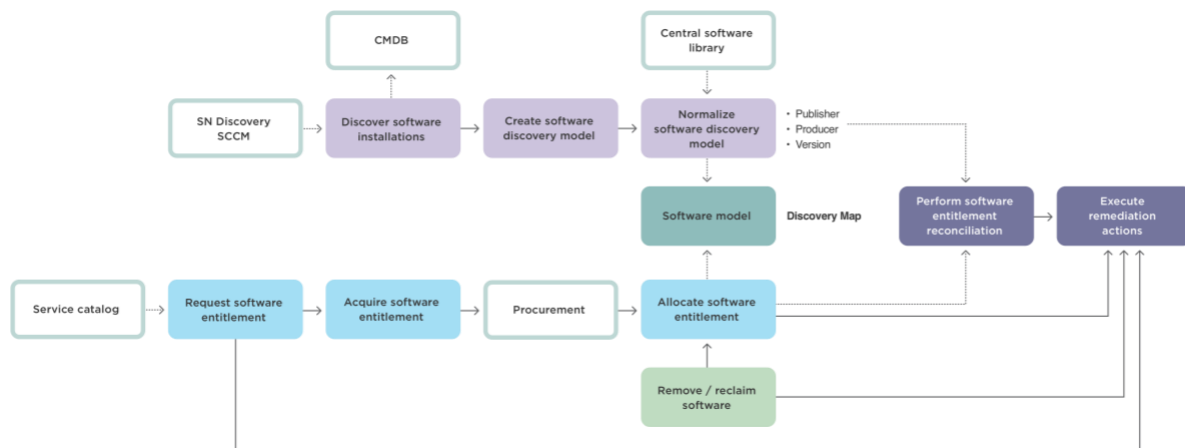


Figure 1: ServiceNow SAM process

“Normalize software installation data” appears as the last activity in the “discovery” segment of the SAM process. As shown in the figure, normalization prepares you to reconcile discovered

software with your acquired entitlements. This is key—keep in mind that normalization serves the reconciliation process.

Step 1: Discover software installations	SAM creates raw software installation data through integration with discovery tools such as ServiceNow Discovery or Microsoft SCCM. This generates the Software Installation table in the database [cmdb_sam_sw_install] and associates the records with the appropriate hardware configuration item (CI) record in the CMDB.
Step 2: Create software discovery model	SAM aggregates software installation records into discovery models by discovered publisher, discovered product, and discovered version.
Step 3: Normalize software discovery data	You normalize discovered publisher, discovered produce, and discovered version in the discovery model to gain a clear view of the installed software. This includes both the automated normalization of raw discovery data against the Central Software Library and the manual normalization of partially normalized discovery models where SAM can't normalize the publisher and/or product.

Table 1: Activities leading up to normalization

ServiceNow SAM normalization matches the discovered publisher, discovered product, and discovered version values to those in the central ServiceNow content library. When it finds a match, SAM updates the discovery model record with normalized **Publisher**, **Product**, and **Version** values, if available. The normalization process may also update the discovery model with additional information, such as:

- Product type, like licensable, patch, driver, or child
- Platform of discovered software
- Language of discovered software
- Edition of discovered software
- Full version number

Discovery model normalization status

When you add software installations that create new discovery models or manually update an unnormalized discovery model, SAM updates the normalization status of the discovery model. The normalization status also dictates what, if any, fields you can update manually on the discovery model record.

NORMALIZATION STATUS	DESCRIPTION	COMMENT
Normalized	Discovery model is fully normalized based on publisher, product, and version fields. Also, in Kingston, the status is normalized if only the publisher and product fields are normalized and the product type is Not Licensable, Child, Driver, or Patch .	Normalization may also populate other discover model fields, such as Edition .
Partially Normalized	Discovery model is normalized on discovered publisher and discovered product.	The remaining attributes require manual input.
Match Not Found	No corresponding match was found in the content library.	Custom software often has this status.
Manually Normalized	Discovery model is normalized to some degree manually.	
New	Discovery model has been created and has not yet run through the normalization process.	

Table 2: Normalization statuses for discovery models

We'll explore when and how to take action on less-than-normalized software in Stage 3.

Software Asset Management content service

“We love to perform manual updates to our data,” said no one ever. You’ve got to do all you can to let the automated normalization processes match your discovered data to entries in the Central Software Library. The single best thing you can do—which also happens to be the easiest thing you can do—is to opt in to the Software Asset Management content service (which we’ll just call the content service). By default, you are opted out.

The primary benefit to opting in to the content service is that it provides continuous software recognition improvement based on your own discovery data. Furthermore, when you submit your unnormalized discovery model data, you give our content team direct input into what content they need to create. This “crowdsourcing” approach helps ServiceNow create content that improves normalization hit rates for as many customers as possible.

How does the content service work? After you submit your unnormalized discovery models, the ServiceNow content team researches the new discovery data and anonymously supplies updates to the Central Software Library, which ServiceNow makes available to all SAM customers. Note that no customer-specific information is included in these updates.

The next time your normalization processes run (typically daily or when new discovery models are added), SAM includes any new patterns when it assesses your unnormalized discovery

models. This will greatly reduce the amount of time you would spend manually updating the discovery models.

You may be asking yourself, “What if I choose not to opt in?” When you opt out, your company no longer contributes to the improvement of the normalization service, nor do you receive content updates specific to your unique software installation footprint within your instance.

However, you will still receive general incremental normalization service updates based on the updates from other sources. But this means that you're relying on everyone else's software installation data to improve your hit rates!

Now, if you opt in to the content service and have concerns about sending information about homegrown software to the content team for research, you can exclude those discovery models from being sent to the content team. By default, SAM sends new unnormalized discovery models to the content service, so you'll have to update the **Exclude from content service** check box on the [discovery model form](#) to prevent the data from being sent.

What's the bottom line? Opt in to the SAM content service. You'll greatly improve your normalization hit rates and save a lot of time by avoiding manual normalization tasks. And you might even help other customers in the process!

Benefits of software normalization

When you create discovery models with normalized software publisher names, product names, and versions, you drive benefits in two key areas:

- **Normalization creates a definitive list of the discovered software in your organization –** Whether for software audit readiness, M&A activity, or IT operations, your organization needs a comprehensive inventory of its installed software. Without normalization, you'll be challenged with multiple names for the same publisher, which requires a substantial effort to rationalize and dilutes the accuracy and value of the reports you run. The SAM normalization process allows you to standardize this installation data from multiple discovery tools.
- **Normalization improves the accuracy and efficiency of reconciliation for your software entitlements –** You use the normalized values in your discovery models to map against the software entitlements you've acquired, driving more accurate reconciliation results. This lets you prepare for and complete software audits with more confidence that your counts are accurate and that they match the entitlement records. Starting with the Madrid release, you can review normalization trend charts on the Normalization and content service dashboard integrated with Performance Analytics.

EXPERT TIP

For major publishers, strive for a normalization rate of 90–95%.

Stage 2 – Work with your discovery data

Choose the right discovery solution for your needs.

ServiceNow SAM integrates with many discovery solutions. The primary requirement? You need to load discovery data into the Software Installations table [cmdb_sam_sw_install]. The Software Installations table links the software data to the correct hardware CI in the ServiceNow CMDB. Your ServiceNow Professional Services team or implementation partner can help you find the best fit for your requirements.

ServiceNow recommends three specific options. These options may offer advantages depending on your current investments, ease of integration, and the environments you want to inventory.

Recommended for the data center: ServiceNow Discovery

ServiceNow Discovery offers the following advantages:

- **No integration required** – Because ServiceNow Discovery shares the same platform as SAM, you don't have to create and maintain integration points between them.
- **SAM publisher pack data collection** – Discovery collects the publisher-specific installation data necessary for reconciliation for key publishers. For example, you use this data in the SAM VMware Publisher Pack, with Discovery collecting VMware License Key and License Key Usage details.

Recommended for Windows desktops and laptops: Microsoft SCCM

Microsoft SCCM offers the following advantages:

- **Ubiquitous** – Many companies use Microsoft SCCM to inventory and manage Windows desktops and laptops.
- **Integration provided by ServiceNow** – ServiceNow maintains SCCM integration with the ServiceNow CMDB using ServiceNow MID Servers. Customers using SAM Professional can configure the integration to populate software installation data into the CMDB tables that SAM uses.

When you're ready to optimize your purchased entitlements, ServiceNow SAM can use metering data or last used data from SCCM to help identify and locate rarely used software. SAM compares this metering data or last used data with thresholds set in reclamation rules, adding little-used software to a list of [removal candidates](#). You can then use the [reclamation option](#) to free up entitlements.

Additional ServiceNow Discovery information

Prerequisite – You must activate the [ServiceNow Discovery plugin](#), which is available as a separate subscription.

See changes in how Discovery stores data with the SAM plugin activated for:

- [Paris](#)
- [Rome](#)

Additional SCCM resources

Learn more about activating and configuring Microsoft SCCM Integration with SAM for:

- [Paris](#)
- [Rome](#)

Learn to avoid common issues when using SCCM and ServiceNow Discovery together for:

- [Paris](#)
- [Rome](#)

EXPERT TIP

Use SCCM for the Windows desktops, Discovery for the data center, and Jamf for Macs.

Recommended for Macs: Jamf Pro Discovery

For Mac environments, Jamf Pro Discovery offers the following advantages:

- **Common solution** – Many use Jamf to inventory and manage Mac environments.
- **ServiceNow Store** – Integration with Jamf is available in the [ServiceNow Store](#). While this release specifies compatibility with the Helsinki and Istanbul releases, you can customize it to accommodate later releases. Alternatively, you can create a manual integration solution.

Additional Jamf information

For general information on integration with third-party applications and data sources, refer to the ServiceNow documentation site for:

- [Paris](#)
- [Rome](#)

Stage 3 – Prioritize what to normalize manually

Learn to manage unnormalized discovery models to improve your reconciliation accuracy.

KEY INSIGHT

- You'll have 80–90% normalization for common publishers right away—the content service raises it.

So, you've run normalization, and you have discovery models SAM couldn't fully normalize. How do you adequately complete the normalization process? You follow the money. In the 1976 film *All the President's Men*, reporter Bob Woodward gets a tip to "follow the money" while investigating the Watergate scandal. That's good advice when working with partially normalized discovery data, too.

When reviewing less-than-fully normalized discovery models, start by working with the publishers that represent your largest software spend. Focus initially on vendors that make up 80% of your total software expenditures. After that, work with software titles that have a high unit entitlement cost.

Prioritizing based on your upcoming software publisher true-ups is another good option. This way, you'll get ahead of the game and get into a regular cadence. Make this part of your standard preparation for your renewals, and your true-up cycles will get easier.

Then, make sure you're only spending time on licensable software products. Remember, normalization supports the software reconciliation process—it only concerns software you're managing entitlements for.

After you've identified the publishers and titles that need your attention, it's time to improve your reconciliation accuracy. We'll begin with an overview of the process flows for managing unnormalized discovery models.

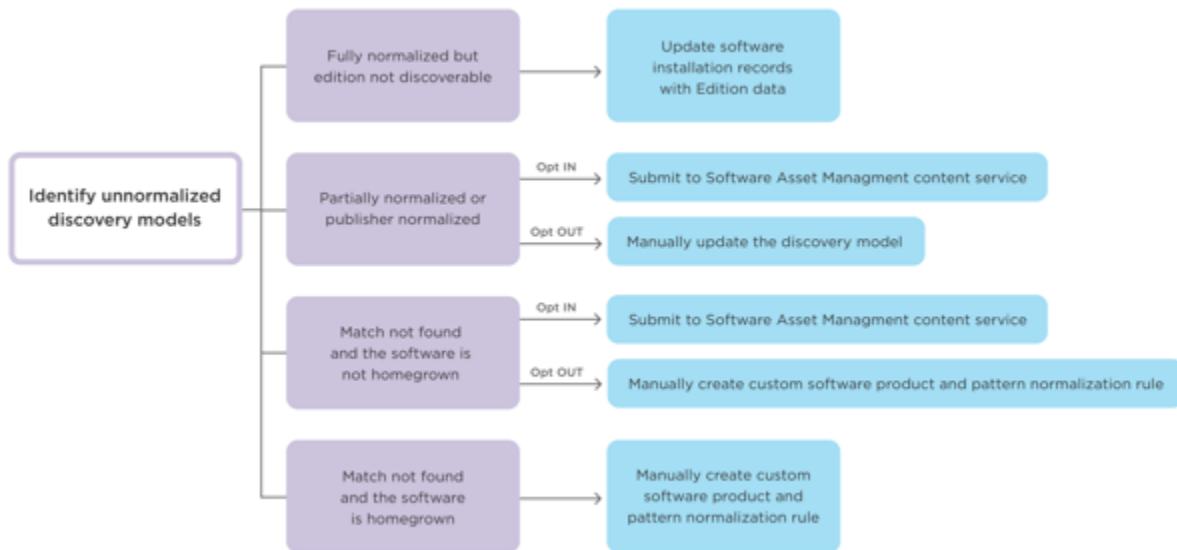


Figure 2: Manual normalization activities

Identify unnormalized discovery models

First, select the discovery models for your target less-than-fully normalized publishers. Start with your Discovery Models module in SAM, then apply filters to generate your punch list.

Make sure you have the following columns in your discovery model list:

- Display name
- Normalization status
- Publisher
- Product
- Version
- Edition
- Product type

The normalization status of your discovery model determines your next steps. You may need to perform one or more of the activities below, resulting in multiple tasks occurring in parallel.

Let's look at four specific scenarios and how to address them.

EXPERT TIP

Focus manual normalization efforts on vendors that comprise 80% of your software spend.

SCENARIO 1: NORMALIZATION STATUS = NORMALIZED, BUT EDITION CANNOT BE AUTOMATICALLY DISCOVERED	
Condition	Sometimes, your discovery tool can't automatically discover the edition of installed software, such as professional or standard, and this leads to potential errors when reconciling installations with entitlements.
Reconciliation impact	You may have inaccurate installation counts, resulting in an inaccurate license position.
Input needed	Software Installation: Manually enter the correct edition value for the affected software installation records. This is the only attribute that you can update manually on this record.
Output generated	Discovery model: With the edition updated on the software installation record, SAM maps the updated record to a new discovery model, which you can then normalize through the automated process. Reconciliation: Calculations include software installations associated with the discovery model.

SCENARIO 2: NORMALIZATION STATUS = PARTIALLY NORMALIZED OR PUBLISHER NORMALIZED	
Condition	<p>If SAM can't fully normalize the discovery model with the publisher, product, and version values, it attempts to partially normalize the discovery model using the discovered publisher and discovered product values. If it finds a match, it sets the publisher and product values, and sets Normalization status to Partially Normalized. The rest of the discovery model (version and additional information, such as platform and edition) requires manual update.</p> <p>If SAM can't normalize the discovery model using the discovered publisher and discovered product values, it validates the discovered publisher in the normalization engine. If it finds a match, it sets the publisher value and sets the Normalization status to Publisher Normalized. The rest of the discovery model (discovered product/ version and additional information) requires manual update.</p>
Reconciliation impact	You have understated installation counts, resulting in an inaccurate license position.
Input needed	Content Service: If you opted in to the Software Asset Management Content Service, submit the discovery model for research by the content team. Allow the content team to research the software and update the Central Software Library. Discovery model: Manually update the remaining attributes, such as product, version, platform, and edition.
Output generated	Discovery model: If you submitted this to the Content Service, SAM will update the Normalization status after normalization processes run with the new content included. If not, SAM will update the Normalization status to Manually Normalized upon the creation of the software product and pattern normalization rules. Reconciliation: Calculations include software installations associated with the discovery model.

SCENARIO 3: NORMALIZATION STATUS = MATCH NOT FOUND FOR HOMEGROWN SOFTWARE	
Condition	The attributes of the discovery model led to no matches in the content library since the software is homegrown.
Reconciliation impact	Since reconciliation is based on normalized values, SAM can't include these software installations in reconciliation calculations, leading to an inaccurate license position.
Input needed	Software Product: Establish publisher, product, and product type (e.g., licensable) and create a custom software product. Discovery model: Manually update the remaining attributes, such as product, version, platform, and edition.
Output generated	After you complete the discovery model attributes, SAM updates the discovery model Normalization status to Manually Normalized .

SCENARIO 4: NORMALIZATION STATUS = MATCH NOT FOUND FOR NON-HOMEGROWN SOFTWARE	
Condition	The attributes of the discovery model led to no matches in the content library. This can be the case with obscure software.
Reconciliation Impact	Since reconciliation is based on normalized values, SAM can't include these software installations in reconciliation calculations, leading to an inaccurate license position.
Input needed	<p>Content Service: If you opted in to the Software Asset Management Content Service, submit the discovery model for research by the content team and inclusion in the library.</p> <p>If you do not wish to submit the discovery model to the Content Service, you can manually normalize using the information below:</p> <p>Software Product: Establish publisher, product, and product type (e.g., licensable) and create a custom software product.</p> <p>Software Entitlement: For licensable software products, create a software entitlement record with the appropriate attributes that reflect the accurate licensing of the software.</p> <p>Discovery Model: Manually update the remaining attributes, such as product, version, platform edition.</p> <p>Pattern Normalization Rules: Create and apply pattern normalization rules to apply to custom software products. Specify text for discovery to search for in the software publisher/product fields.</p> <p>Specify the normalized attributes (product type, platform, language, version, etc.) that you want normalized when discovered.</p>
Output generated	<p>Discovery model: If you submitted this to the Content Service, SAM will update the Normalization status after normalization processes run with the new content included.</p> <p>After you complete the discovery model attributes and pattern normalization rules, SAM updates the discovery model Normalization status to Manually Normalized.</p>

The takeaway

Now that you've completed this best practice, you should have a better understanding of software normalization and why it benefits you during software publisher audits and renewal discussions. Normalization equips you to better defend your compliance position, thanks to improved software reconciliation accuracy.

You should also be ready to prioritize managing discovery models that aren't fully normalized, starting with your high-spend publishers. Then, you can take steps to remediate each normalization status for those targeted discovery models.

With a clear plan for normalizing your discovered software—starting with your high-spend vendors—you'll be more confident about your software license position and better prepared for your next software audit or renewal.

What's next? Opt in to the ServiceNow SAM content service, if you haven't already, to send your unnormalized discovery models to the content team for research and inclusion in the library. Our customers drive this service—and all customers benefit from the power of the crowd.

Welcome to the new normal(ize).

Appendix

Related resources

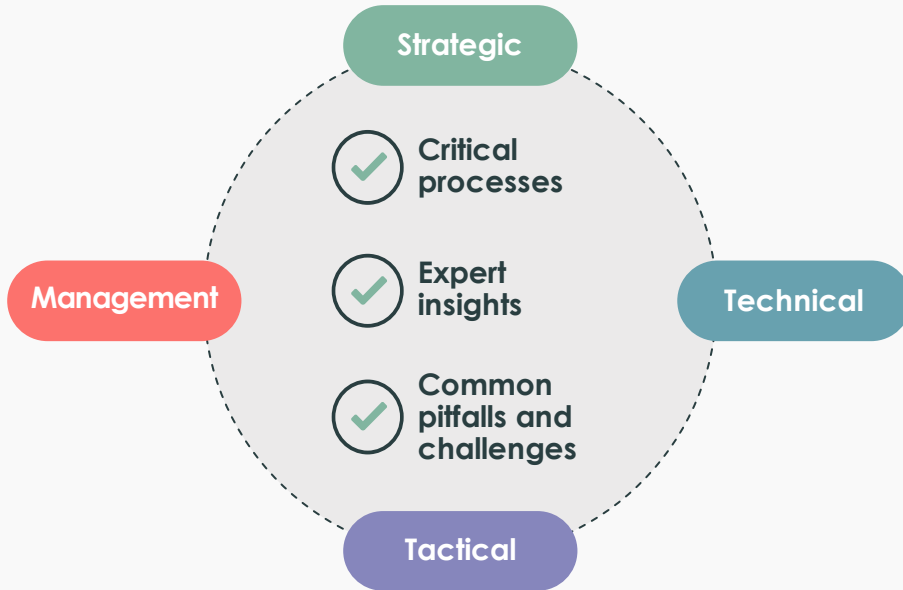
- [Success Checklist – Software Asset Management implementation readiness](#)
- [Customer Success Center – Software asset management with ServiceNow](#)
- Product documentation:
 - [Paris](#)
 - [Rome](#)
- [Now Community – IT Asset Management group](#)
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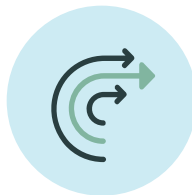


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