Cisco Smart Licensing

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**Introduction**

Cisco is making massive changes to its product lines in response to changing customer requirements, including reinventing the network to be more software-focused and less hardware-dependent.

**Cisco® Smart Licensing** supports this vision and simplifies software license management for our customers. Smart Licensing is a flexible software licensing model that provides customers with an easier, faster, and more consistent way to purchase, activate, manage, renew, deploy, or upgrade their software products across the Cisco portfolio and across their organization.

Smart Licensing helps our customers answer two questions:

- What licenses have we purchased from Cisco?
- What licenses are we using?

By providing useful and concise answers to these questions, Smart Licensing enables Cisco customers to make more informed decisions regarding their purchases in the future.

Smart Licensing is a new way of thinking about software licensing.

**Cisco Smart Licensing**

Smart Licensing works in a completely different manner from older or classic licenses. With older or classic licenses:

- Customers had a limited view, as there was no way to keep track of all of the software licenses that they own.
- Each device had to be manually registered using a license key.
- Licenses were tied to a specific device, and if the device was no longer in use, neither was the license.

Smart Licensing simplifies the way customers activate and manage licenses across their organization:

- **License flexibility:** Licenses are not node-locked to hardware, so customers can easily pool license entitlements and move them around freely through their network as needed.
- **Easy activation:** Smart Licensing establishes a pool of software licenses that can be used across an entire organization; no Product Activation Keys (PAKs) are needed for registrations.
- **Simplicity:** Leave inconsistent licensing entitlements and management behind. Cisco is standardizing Smart Licensing across all products.

Watch the introductory video to learn more.

Smart Licensing is typically deployed on products in one of two ways:

- **Smart Licensing only:** These products support Smart Licensing as their only licensing option. Association of the licenses to a Smart Account is mandatory before the customer can successfully use the products.
- **Hybrid:** These products are sold with an older licensing model, such as PAK, honor based, Cisco Prime® License Manager, or other proprietary licensing models. They will default to using their old licensing model, but the customer may opt to activate Smart Licensing on the products when ready. **Cisco is retiring the hybrid model on most products as of August 1, 2020.**
Smart Licensing requirement: A Cisco Smart Account

To use a Smart Licensing, customers must first set up a Cisco Smart Account at Cisco Software Central.

Types of accounts

- Customer Smart Account
- Partner Holding Account

A Customer Smart Account, usually referred to as just a Smart Account, is a container that allows customers to organize all their Cisco licenses, devices, and specific license agreements and manage user access to their assets and entitlements, thereby protecting their investments. Similar to Cisco requiring a customer physical address for hardware shipment of products, a Smart Account is required for digital delivery of a license. After the assets are deposited in the Smart Account, they can be accessed via various user interfaces such as Cisco Smart Software Manager (SSM).

Both Cisco customers and partners benefit from creating a Smart Account to manage their assets.

To learn more about a Smart Account, watch the following videos:

- Introduction to Smart Account
- Create a Customer Smart Account

Customers can further create subaccounts within their Smart Account. These subaccounts, also referred as Virtual Accounts, are used to internally organize and manage licenses based on a company’s specific needs, such as departments or geographies. When a Smart Account is created, a corresponding default Virtual Account is created automatically. All licenses are deposited into this default account if a specific Virtual Account is not selected when the order is placed in Cisco Commerce Workspace (CCW).

Additionally, Cisco partners can benefit from creating a Partner Holding Account. A Partner Holding Account is used by partners to temporarily store orders before they are deposited to the Customer Smart Accounts. When ordering, a partner may not know the end customer or their Smart Account upfront, and instead will assign the order to the Partner Holding Account temporarily. Once the customer is identified, the partner can transfers the order to the Customer Smart Account.

The key distinguisher between a Smart Account and a Partner Holding Account is that licenses can be consumed only in a Smart Account, not in a Partner Holding Account. Assigning a Partner Holding Account on an order also provides companywide access to the order.

To learn more about a Partner Holding Account, watch the following videos:

- Introduction to Partner Holding Account
- Create a Partner Holding Account
Cisco Smart Software Manager: The user interface

After creating a Customer Smart Account, customers access Cisco Smart Software Manager, the user interface to manage all their Smart Licensing. With SSM, customers can view, organize, and take multiple actions to effectively manage their licenses.

Figure 1.
The Cisco Smart Software Manager user interface

How does Smart Licensing work?

With Smart Licensing, licenses are not installed on individual Cisco platforms. Instead, a pool of licenses is associated to a [Cisco Smart Account](#) and an inventory ledger is kept and visible within the [Smart Software Manager](#) interface.

As new licenses are purchased using commerce tools, the licenses are automatically deposited into the customer’s Smart Account. As new licenses or entitlements are added, the number of license that the customer has available increases. As subscriptions expire or are terminated, the number the customer has available decreases.

Similarly, as Cisco product instances are activated and configured, they will perform a “call home” to their Smart Account, report how many of all the licenses they need, and receive a response back stating whether they have enough licenses to support their current usage. The response they get back will be one of the following:

- **Authorized:** The license pool has enough licenses to support the current license usage across all devices in the pool.
- **Out of compliance:** The license pool does not have sufficient licenses to support the current license usage across all devices in the pool. In most cases, this means that the product continues to function normally but will begin complaining about not having enough licenses. After 90 days in this state, the products impacted may limit configurability for new services until the license issue is resolved.
Different deployment options for different security profiles

Smart Licensing allows customers to control the level of security required for their environment. There are multiple options for usage reporting – Cisco understands there is no “one size fits all” approach when it comes to security. The customer may choose one deployment option or a mix-and-match approach of the various deployment options, based on what is most convenient and best suited to the customer's organization.

**Direct (at Cisco) license management and reporting**

The simplest deployment method is direct cloud access, in which a Cisco product sends usage information directly over the internet or through an HTTP proxy server. If the Cisco devices have connectivity to tools.cisco.com over the internet, this solution is by far the simplest, as it requires no additional configuration steps – it works “out of the box.”

<table>
<thead>
<tr>
<th>Table 1. Direct cloud deployment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Direct (cloud): 80% of deployments</strong></td>
</tr>
<tr>
<td><strong>Description</strong></td>
</tr>
<tr>
<td><strong>Why would I choose this?</strong></td>
</tr>
<tr>
<td><strong>Advantages</strong></td>
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<tr>
<td><strong>Disadvantages</strong></td>
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</tbody>
</table>
Mediated (on-premises) license management and reporting

The Cisco SSM On-Prem license server is used when a customer requires an on-premises license management solution to comply with security policies. It does not allow devices to have connectivity over the internet, either directly or through an HTTP proxy server.

Using the free download, a customer or partner can deploy the SSM On-Prem license server to keep device communication contained within the customer’s local network. The SSM On-Prem license server uses a synchronization process to exchange license information with SSM. This can be accomplished with either an automatic network-based transfer or an offline manual transfer.

Table 2. On-premises license management

| Description | Using a free virtual machine-based download, a customer or partner can deploy the Cisco SSM On-Prem license server, which replicates the cloud-based user experience from the direct connect method but keeps all communication on the customer premises. Once a month, the SSM On-Prem server and SSM will synchronize databases, with either a network-based transfer or a complete offline manual transfer. |
| Why would I choose this? | For customers who would like to keep the operational simplicity of the automated cloud-based approach, but keep all communications local to the protected network, the SSM On-Prem server offers the perfect solution. Most often this deployment is used by financial institutions, utilities, service providers, and government organizations. |
| Advantages | Same experience as direct cloud access, but with higher security. Works for all products. |
| Disadvantages | Cost of installing and maintaining the software application virtual machine. If manual synchronization is used, cost of completing the manual data exchanges. |

Disconnected (License Reservation) license usage

For customers who need to have a full air-gapped environment where the disconnected SSM On-Prem license server is not an option (remote deployments, low-high side operations), the License Reservation option, which requires no ongoing communications or additional infrastructure, may be more efficient. If deploying more than about 30 Cisco devices, the disconnected SSM On-Prem server deployment model is recommended instead to simplify license changes and the RMA process.

For the highest degree of security, Cisco offers full offline access through License Reservation. In this environment, all license changes are processed manually. License Reservation involves copying and pasting information between the product and Cisco.com to manually check licenses in and out. The functionality is equivalent to node locking, but with Smart Licensing tracking.
Table 3. License Reservation deployment

<table>
<thead>
<tr>
<th>Description</th>
<th>Using a process similar to Product Activation Keys (PAKs), licenses can be delivered using manual reservation codes to Cisco devices. Due to the offline nature of this type of license management, any changes to the license usage must be manually processed. This option is disabled on all Smart Accounts by default and is not recommended.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why would I choose this?</td>
<td>For customers who need to have a full air-gapped environment but may not yet receive the operational advantages of using a disconnected SSM On-Prem server, this option may be more efficient. If deploying more than about 30 Cisco devices, the disconnected SSM On-Prem deployment model is recommended instead.</td>
</tr>
<tr>
<td>Advantages</td>
<td>Requires no ongoing communications. Requires no additional infrastructure.</td>
</tr>
<tr>
<td>Disadvantages</td>
<td>Available on only a subset of Cisco products. All license changes must be processed manually, including RMAs.</td>
</tr>
</tbody>
</table>

How does enforcement work?

Smart Licensing is not meant as a strict enforcement system in the same way that traditional node-lock technologies are, but instead provides real-time monitoring and accounting of how software is used. While Smart Licensing does not lock licenses to individual devices, it does provide monitoring and light enforcement capabilities for overuse of licenses and subscription/term expiration in the following way:

- License pools are a reflection of how many licenses are available at a given moment. If a subscription for five new licenses begins, five additional licenses are added to the pool. If a subscription for five licenses expires or is canceled, five licenses are removed from the pool. In near real time, the Smart Account provides information on exactly how many entitlements the customer has.
- As long as the number of entitlements in the pool is greater than or equal to the number of licenses being consumed, the product will always understand that it is in an “authorized” state.
- When the number of licenses in the pool is less than the number of licenses being consumed, either because additional licenses were consumed by new deployments or because the number of licenses decreased due to expiration of subscriptions or terms, the pool is moved to an “out of compliance” state.
- When a new device is deployed using the ‘Out-of-Compliant’ license, or when existing devices check-in (which occurs every 30 days, or more frequently depending on the device activity), they will receive the ‘Out of Compliance’ status report for their license use. On receiving the ‘Out-of-Compliance’ status, the device may choose to act. Since this state is sent to ALL devices in the pool using the specific license, it is recommended that enforcement actions are limited to the light end of the spectrum (Nag-ware, limiting adding of new capabilities, etc.).

The action taken by the product when it receives an “out of compliance” response is device specific but tends to be light enforcement in nature. To determine which action a product takes, see the following documentation:

**Evaluation**

Products also support a built-in evaluation period ranging from 60 to 90 days. Evaluation allows customers to try out licenses before connecting to Smart Licensing directly and can also serve as a bridge between the time that the product is first installed and when it is licensed.

Evaluation modes never allow for the use of export-controlled functionality due to the need to comply with U.S. export law. Otherwise, most products will allow for full functionality during the evaluation period. For more details on the action that each product takes, including actions when the evaluation period expires, please review the product documentation or the summary documented here:


**What messages will I receive when out of compliance?**

Customers, both users and administrators of Customer Smart Accounts, will be notified in two ways when a Virtual Account is consuming more licenses than have been purchased, putting the Virtual Account into an “out of compliance” state.

Please note that all devices consuming licenses from this Virtual Account license pool will be reported as “out of compliance” and not just the most recent devices to consume from it.

1. Cisco SSM will display a Major alarm on its primary Alarms interface as well as within the Virtual Account itself. This alarm will provide information on what licenses are required and the quantity needed for each license with a shortage.

   ![Alarm Example](image)

   In addition, the Smart Account user/administrator may elect to receive a daily email digest with any “out of compliance” issues.

   This information will also be provided within the offline license report obtained via the Report tab within Cisco SSM.

2. Once the Cisco device receives a notification that it is in an “out of compliance” state, it will display the appropriate notifications on its user interface. In addition, syslogs will be sent out as follows: Syslog %SMART_LIC-3-OUT_OF_COMPLIANCE will be sent once a week per device.
What messages will I receive when operating in evaluation mode?

Customers will be notified when new devices are brought up and initially begin using evaluation licenses from their Cisco products.

Since there is no connection to software.cisco.com for unregistered devices, there will be no notification or alarms on Cisco SSM directly, but the Cisco product itself will display the appropriate information on its user interface.

In addition, syslogs will be sent out from products that are in either an Evaluation or Evaluation Expired state with the following frequency:

**While in the evaluation time period:**

%SMART_LIC-4-EVAL_WILL_EXPIRE_WARNING

- 60 days before expiration
- 30 days before expiration
- Every week in the last 30 days
- Every day in the last week
- Every hour in the last day

**After evaluation has expired:**

%SMART_LIC-3-EVAL_EXPIRED_WARNING

- Once a week until issue resolved

Getting started

1. Log in to [software.cisco.com](http://software.cisco.com) using your Cisco ID.

2. Select Manage Smart Account under the Administration section to manage the Smart Account.

3. Select Smart Software Licensing under the License section to manage Smart Licensing. Smart Software Licensing is also referred to as [Cisco Smart Software Manager](https://www.cisco.com) (SSM).

4. The view and actions available to a user are based on the user’s assigned role.

Table 4. User capabilities in Cisco SSM

<table>
<thead>
<tr>
<th>Things to do in “Manage Smart Account”</th>
<th>Things to do in “Smart Licensing”</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Create a Virtual Account</td>
<td>● Check alerts</td>
</tr>
<tr>
<td>● Add users and manage roles</td>
<td>● View and manage Smart Licensing</td>
</tr>
<tr>
<td>● Manage user groups</td>
<td>● Register and manage devices</td>
</tr>
<tr>
<td>● Tag a Virtual Account</td>
<td>● Convert classic licenses to Smart Licensing</td>
</tr>
<tr>
<td>● View the contract/agreement with Cisco</td>
<td>● Generate custom reports</td>
</tr>
<tr>
<td></td>
<td>● Enable Smart Licensing notifications</td>
</tr>
<tr>
<td></td>
<td>● View and manage on-premises accounts</td>
</tr>
<tr>
<td></td>
<td>● View license activity</td>
</tr>
</tbody>
</table>
License conversion – traditional licenses to Smart Licensing

The Smart Account administrator can convert traditional/classic licenses to Smart Licensing using self-service methods. Using Cisco Smart Software Manager, the Smart Account administrator can set up automatic device-led conversion for any new devices added to their Smart Account or licenses and PAKs that they choose to convert in bulk.

Check out the resources on demand:

- Brownfield Conversion Guide
- Convert Classic Licenses to Smart Licensing
- Assign a Classic PAK-Based License to a Smart Account
- Classic Licensing Management with Smart Accounts

Cisco recommends that customers assign traditional/classic licenses to Smart Licensing upfront when purchasing via commerce tools such as Cisco Commerce Workspace.

Check out the resources on demand:

- Assign Smart Account to an Order

Product families

Smart Licensing is currently supported across about 70 percent of Cisco product families. This number is always increasing and will change based on individual product release schedules.

For a current list of available Smart Licensing enabled products, please see the list at https://communities.cisco.com/docs/DOC-71451

For details on specific product activation documentation, please see the “View Smart Licensing Documentation by Product” section at https://www.cisco.com/go/smartlicensing
Cisco environmental sustainability

Information about Cisco’s environmental sustainability policies and initiatives for our products, solutions, operations, and extended operations or supply chain is provided in the “Environment Sustainability” section of Cisco’s Corporate Social Responsibility (CSR) Report.

Reference links to information about key environmental sustainability topics (mentioned in the “Environment Sustainability” section of the CSR Report) are provided in the following table:

<table>
<thead>
<tr>
<th>Sustainability topic</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information on product material content laws and regulations</td>
<td>Materials</td>
</tr>
<tr>
<td>Information on electronic waste laws and regulations, including products, batteries, and packaging</td>
<td>WEEE compliance</td>
</tr>
</tbody>
</table>

Cisco makes the packaging data available for informational purposes only. It may not reflect the most current legal developments, and Cisco does not represent, warrant, or guarantee that it is complete, accurate, or up to date. This information is subject to change without notice.

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Flexible payment solutions to help you achieve your objectives

Cisco Capital makes it easier to get the right technology to achieve your objectives, enable business transformation and help you stay competitive. We can help you reduce the total cost of ownership, conserve capital, and accelerate growth. In more than 100 countries, our flexible payment solutions can help you acquire hardware, software, services and complementary third-party equipment in easy, predictable payments. Learn more.

References

1. Cisco Smart Licensing webpage
2. Cisco Smart Account webpage
3. Smart-Enabled SKUs list
4. Smart Licensing Product Roadmap
5. Smart Software Manager On-Prem Overview
6. Smart Software Manager On-Prem Data Sheet
7. Cisco Software Smart Licensing Management with Smart Accounts
8. Smart Licensing and Smart Accounts FAQ for Partners, Distributors and Customers
9. Smart Account and Smart Licensing APIs
10. Smart Licensing and Smart Accounts training modules for:
   a. Customers
   b. Partners and distributors
   c. Additional training

11. Smart Licensing and Smart Accounts live training schedules by geography
   a. Americas training schedules
   b. EMEAR training schedules
   c. APJC training schedules

12. Open a case with Support Case Manager (SCM)
   a. Learn how
   b. Find case status

13. Smart Licensing and Smart Accounts data privacy