Cisco Smart Software Manager
On-Prem License Server
Why Do We Care About Software Licensing?

**Past Experience**

1. Customer or Partner Places Order (9 Tools)
2. Customer Enters PAK for Each License
3. Customer Receives or Downloads and Installs Software (2 of 5 Tools)
5. Customer Uses Software
6. Customer Manages Software (10 Tools)

**Today’s Experience**

1. Customer or Partner Places Order in Cisco® Commerce
2. Customer Activates and Uses Software
3. Customer Manages Licenses

**Customer System**
- Routers
- Switches
- Video
- Unified Communications

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Deploying Smart License Enabled Products

Access To Cisco
Cisco product sends usage information directly over the internet or through a HTTP Proxy Server. No additional components are needed.

Access Through An On-Premise License Management
Cisco products send usage information to Smart Software Manager locally installed. Periodically, exchange information automatically in connected environments or manually in disconnected environments.

No Access – License Reservation
Use copy/paste information between product and Cisco.com to manually check in and out Licenses. Functionally equivalent to current node locking, but with Smart License tracking.
What is Smart Software Manager (SSM) On-Prem?

A Smart Software Manager On-Prem is…

- A component of Cisco Smart Licensing and works in conjunction with the cloud-based Cisco Smart Software Manager (SSM)

A Smart Software Manager On-Prem is ideal for…

- Customers who have strict security requirements and do not want their products to communicate with the central licensing database on Smart Software Manager over a direct Internet connection
Cisco SSM On-Prem Benefits

**Trusted Security**
- Secure on-premises single source of truth of license consumption

**Real-time Entitlement**
- Near real-time license entitlement based on synchronization schedules with backend install base

**Utilization Visibility**
- Complete view of software, services, and devices in easy-to-use portal.

**Increased Control**
- Flexible licensing pooling enable licenses to be reused across devices and the organization

**Unlocked**
- Elimination of the node-locking of licenses to devices, simplifies the RMA process

**Cost Reduction**
- Save time and money through efficient license usage
SSM On-Prem – Deployment Model Overview

Service Providers
- Supports multiple Local Accounts

Cisco Partners
- Scales up to 100,000+ products and 500 Local Accounts
- Provides online or offline connectivity

Large Enterprises
- Similar User Interface to Cisco SSM
- Security built-in to increase resiliency and trustworthiness.

To get a more detailed description of Smart Software Manager On-Prem solutions in the User Guide [https://www.cisco.com/go/smartlicensing](https://www.cisco.com/go/smartlicensing)
Support for physical or virtual deployment of Cisco SSM On-Prem License Server

Cisco SSM On-Prem – 5 step installation

Install ISO

Enter IP address

Change Credentials

Finalize Installation

Register Account

200 GB Hard Disk
8GB Memory
Products*: 4 vCPUs/50,000
6 vCPUs/100,000

Enter IP and Subnet/Prefix, and DNS

Shell/GUI PWD, Language, Host Common Name

Finalize installation and bring up On-Prem server

Enter NTP and Register Local Account with Cisco

* Maximum of 25,000 products per Local Account
Licensing Portal

- Similar functionality to software.cisco.com
- Users can manage their local accounts, users, product instances, devices and licenses
- Users can create new local accounts, request access to local accounts and manage local accounts and local virtual accounts

Administration Portal

- Enables internal administrative functions including user control, account management, registration, synchronization, and much more
- Supports additional functionality including external authentication, syslog and proxy support
- Restricted to only authorized users
Data Security: Smart License Manager On-Prem

Licensing and Administration Portal Roles

Administration Portal Roles

System Admins
Have all of the abilities as the System Operator plus they can approve and delete local accounts and complete all system configurations.

System Operators
Have full admin access to all the local accounts, can perform local Account registration/synchronization, & can not change system configurations.

System Users
Has No permission on the Admin portal. Access to Local Accounts based on Licensing Portal Roles.

Licensing Portal Roles

Local Account Admins

Local Account Users

Local Virtual Account Admins

Local Virtual Account Users

Similar to CSSM Smart Account and Virtual Account roles but at the local level within the SSM On-Prem.
Data Security: Smart License Manager On-Prem

Deployment Modes – Connected v. Disconnected

**Connected**
- Mode is used when there is **direct connectivity** to cisco.com from the SSM On-Prem
- License consumption and entitlement can be synchronized with Cisco SSM on-demand or automatically via scheduling
- Standard model, easiest to deploy

**Disconnected**
- Mode is used when there is **no connectivity** to cisco.com from the SSM On-Prem
- SSM On-Prem can be synchronized with Cisco SSM via a file upload and download
Key Features in SSM On-Prem

**Multi-tenancy:** Manage *multiple local* accounts in a single management portal
- Support for Multiple Local Accounts
- Multiple levels of RBAC (Admin, Operator, User)

**Data Privacy:**
- Restrict Product information (hostname, ip, etc.) from being sent to Cisco
- Auditable data exchange between SSM On-Prem and Cisco
- Local User Authentication Control: LDAP, Active Directory
- Local User Accounts limit need for users to have a Cisco CCOid or access to Cisco Smart Account

**Networking Support**
- IPv4 and IPv6 support
- Multi-NIC: multiple interfaces for traffic separation between network management and product instance registrations.
- Proxy support: Allow for SSM On-Prem to have a proxy between itself and Cisco
- Firewall Zones: Ability to configure interfaces for Internal (access) or External (no access)

**System Alerts and Notifications**
- Email and Syslog support: Account events can be configured to be sent to a syslog server
Key Features in SSM On-Prem

New License Features

• License AppHA: Allows for the reporting of a single license usage for both standby and active Applications
• License Hierarchy: Enable borrowing of a higher-tier license to be fulfilled when a lower tier license is not available

API Support

• Resource and Owner credentials grant supported
• 5 major API groups for over 15 unique APIs

Longer Sync Intervals

• Native 365-day Synchronization Schedule
• Allow SSM On-Prem to functions as long as it synchronizes with Cisco once a year.

Improved Scalability

• 500+ accounts
• 100,000 Product Instances (25000 per Local Account)
• Active development in progress to increase scale
License Workspace

✓ View Local License Availability and Usage
✓ Manage Products registered to On-Prem
✓ Generate Reports on product and License Usage
✓ View Local Account activity

✓ Create and Manage Local Virtual Accounts
✓ Manage Local Users Account Access
✓ Custom Tags and Local User Groups
✓ View Event Logs

Local Account you’re working with?
Administration Workspace – Registration

• All Local Accounts map to a Smart Account/Virtual Account

• Flexible Account Setup models
  • Single Smart Account mapping to Multiple On-Prem Accounts
  • Multiple Smart Account mapping to Multiple On-Prem Accounts

SSM On-Prem Local Account

Local Virtual Account (DEFAULT)
  • Datacenter assets
  • Headquarters staff assets

Smart Account

Virtual Account
Administration Workspace – Account Registration
Example: On-Prem Accounts to Single Smart Account
Administration Workspace – Account Registration

Example: On-Prem Accounts to Single Smart Account

Acme Enterprise

IT Department
Data Center
Engineering

Default VA

SSM On-Prem

IT Department
Data Center
Engineering

Default
Default
Default
Administration Workspace – Account Registration
Example: On-Prem Accounts to Multiple Smart Account

Acme Managed Partner
- GA Customer
  - Virtual Account
- IT Customer
  - Virtual Account
- ES Customer
  - Virtual Account

(ssoftware.cisco.com)

GA Customer
- Default

IT Customer
- Default

ES Customer
- Default

SSM On-Prem

Accounts
Administration Workspace – Synchronization

Synchronization Requirements

The SSM On-Prem server must be synchronized with Cisco periodically.

• If **Connected** this can be scheduled to occur automatically
• If **Disconnected**, this can be done via a manual file transfers

• Synchronization can be scheduled or performed manually
  • By default SSM On-Prem synchronizes with Cisco every **30 days**
  • Many Customers doing manual synchronization, synchronize with Cisco every **90 days**
  • It is recommended you do not exceed **180 days** (6 months) without synchronization

• Synchronization with Cisco **MUST occur within 364 days**.

After 364 days without synchronization;

• A new Account **MUST** be registered with Cisco
• All ID Tokens in the Account are expired
• Products will need to be re-registered
Administration Workspace – Synchronization

Account Synchronization

Local Account: **Quebec**

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Smart Account: **Acme Enterprise**

**Quebec VA**

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# Administration Workspace – Synchronization

## Account Synchronization

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### Smart Account: Acme Enterprise

#### Quebec VA

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Administration Workspace – Synchronization

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SSM On-Prem – Product Registration

Product Registration with Strict Cert Checking

- Products which support Strict SSL Cert Checking require the **Host Common Name** to match the “destination http” URL address configured for the product.

- If you do not have a valid DNS entry for the host name, use the IP address of the SSM On-Prem server instead.

destination address http `https://10.83.111.69/Transportgateway/services/DeviceRequestHandler`
SSM On-Prem – Product Registration

Product Registration with Strict Cert Checking

Assume On-Prem Cert is assigned to **CN=Cisco-On-Prem** with IP address of 10.83.111.69

- If you can change the URL for your device to point to:
  [https://Cisco-On-Prem/Transportgateway](https://Cisco-On-Prem/Transportgateway)
- That means your device can resolve "Cisco-On-Prem" to a valid IP address
- In regular IOS you can static map the host name to an IP. Example: “ip host Cisco-On-Prem 10.83.111.69”

- If you can change the URL for your device to point to
  [https://10.83.111.69/Transportgateway](https://10.83.111.69/Transportgateway)
- That means you need to configure the On-Prem name to 10.83.111.69
- This will cause the Cert to be assigned to **CN=10.83.111.69**

HTTPS, by default, will do a server identity check during SSL handshake which verifies destination URL is the same Common Name (hostname or ip) filled in certificate.

Note: If product supports it, you can use “**no http secure server-identity-check**” to disable the check and keep using ip address in URL.
SSM On-Prem – Product Registration

Smart Licensing Workflow

Device/Product started → SL State= Un-configured → For Hybrid Product
Enable Smart Licensing

Create/Copy Registration ID Token from SSM On-Prem

Enter Register command/GUI with ID Token

Platform uses feature & reports usage to CSSM

SL State= Registered

Have more licenses than being used

In-Compliance (Authorized)

Out of Compliance

Using more licenses than entitled to

SL State= Un-identified

SSM On-Prem License Workspace

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SSM On-Prem – Product Registration

Configuring Destination URL

- Products register to On-Prem the exact the same way as with Cisco
- Change the ‘Authorized Backend Address’ (See product documentation)

**Smart Transport Config:**

```bash
Device(config)# license smart transport smart
Device(config)# license smart privacy [all | hostname | version]
Device(config)# license smart url https://10.83.111.69/SmartTransport
```

**Or**

**Smart Call Home Config:**

```bash
call-home
data-privacy level hostname
profile "CiscoTAC-1"
  no destination transport-method email
destination address http https://10.83.111.69/Transportgateway/services/DeviceRequestHandler
no destination address http https://tools.cisco.com/its/service/oddce/services/DDCEService
```
SSM On-Prem – Product Registration

Configuring Global Data Privacy Settings

Global Synchronization Data Privacy Settings

Exclude the following from the product instance data sent to Cisco. This change applies to all accounts unless overridden individually on each account.

- Hostname
- IP Address
- MAC Address

NOTE: Even if the Cisco Product sends it to On-Prem, it can be excluded in the data exchange with Cisco though Data Privacy settings in the On-Prem Administration Workspace.
SSM On-Prem – Communication Channels and Ports

Cisco Products communicate by default (out of the box with Smart Software Manager)

Products:
- HTTPS(443): tools.cisco.com
- HTTP(80): www.cisco.com

On-Prem
- HTTPS(443): swapi.cisco.com
- IPv4: 146.112.59.25
- IPv6: 2a04:e4c7:ffe::4

Cisco Products communicate with Smart Software Manager On-Prem using the same protocol.

Protocol:
- User Interface: HTTPS(8443) Only
- Products: HTTP(80)/HTTPS(443)
- CSSM: HTTPS(443)
- Syncs: api.cisco.com. (old)
  swapi.cisco.com (new)
- Account Registration: cloudsso.cisco.com

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Thank you