Smart Licensing Tool User Guide

Kinetic - Edge & Fog Fabric Processing Module (EFM) 1.2.0

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Contents

Introduction

Cisco Smart Software Licensing is a new way of thinking about licensing. It helps customers to procure, deploy, and manage licenses easily where devices self-register and report license consumption, removing the need for product activation keys (PAK). Smart Licensing pools license entitlements in a single account and allows customers to move licenses freely through the network, wherever you need them.

The EFF supports 2 different PIDs, one for NODES and another for DEVICES. Each PID is managed independently through the use of a corresponding tool. The efm-device-licensing tool is for DEVICES and efm-node-licensing tool for NODES. The functionality is identical, just the product registration varies.

Smart Software Licensing

Smart Licensing is enabled across Cisco products and can be managed by a direct cloud-based or mediated deployment model. Through these management portals, customers can see the license purchases and consumption, as well as move licenses across the enterprise in real time. The Cisco Smart Software Manager (CSSM) portal is the direct cloud-based deployment, and Smart Software Manager satellite (more details in the next section) is the mediated Smart Licensing deployment.

Entitlements are purchased through your Cisco account like Cisco Commerce Workspace (CCW) and immediately deposited into your Virtual Account for usage. This eliminates the need to install license files on every device. Products that are smart enabled communicate directly to Cisco or an on-prem licensing server to report consumption. License ownership and consumption are readily available to help make better purchase decisions based on knowledge of what's been purchased and consumed and/or other business needs.

Smart Software Manager satellite

Cisco Smart Software Manager satellite is a component of Cisco Smart Licensing and works in conjunction with Cisco Smart Software Manager (SSM). It helps customers intelligently manage product licenses, providing near real-time visibility and reporting of the Cisco licenses they purchase and consume.

For security-sensitive customers who do not want to manage their installed base using a direct Internet connection, the Smart Software Manager satellite is installed on the customer

premises and provides a subset of Cisco SSM functionality. After you download the satellite application, deploy it, and register it to Cisco SSM, you can perform the following functions locally:

- Activate or register a license
- Get visibility to your company's licenses
- Transfer licenses between company entities

Periodically, the satellite needs to synchronize with Cisco SSM to reflect the latest license entitlements.

To obtain the latest version of the Cisco Smart Software Manager satellite virtual machine, user guide, installation guide, datasheet, overview and the FAQ please visit http://www.cisco.com/c/en/us/buy/smart-accounts/software-manager-satellite.html.

Smart Accounts/Virtual Accounts

A Smart Account provides a single location for all Smart entitlements. When a Smart-License enabled product is purchased by customers, they must specify or create a Smart Account at the time of purchase. When creating a Smart Account the submitter must have the authority to represent the requesting organization. After submitting, the request goes through a brief approval.

A Virtual Account exists as a sub-account within the Smart Account. Virtual Accounts are a customer defined structure based on organizational layout, business function, geography or any defined hierarchy. They are created and maintained by the Smart Account administrator(s).

Visit software.cisco.com to learn about Smart Licensing and management of Smart Accounts.

Smart Accounts are required for Smart Licensing. The creation of a new Smart Account is a one-time event and subsequent management of users is a capability provided through the tool. To request a Smart Account, visit software.cisco.com and take the following steps:

Step 1. After logging in Select "Request a Smart Account" in the Administration section:

Administration

Request a Smart Account
Get a Smart Account for your organization.

Request a Partner Holding Account
Allows Cisco Partners to request a Holding Smart Account

Manage Smart Account
Modify the properties of your Smart Accounts and associate individual
Cisco Accounts with Smart Accounts.

Learn about Smart Accounts
Access documentation and training.

Step 2. Select the type of Smart Account to create. There are two options: (a) Individual Smart Account requiring agreement to represent your company. By creating this Smart Account, you agree to authorization to create and manage product and service entitlements, users and roles on behalf of your organization. (b) Create the account on someone else's behalf.

Create Account

Would you like to create the Smart Account now?

○ Yes, I have authority to represent my company and want to create the Smart Account.

◉ No, the person specified below will create the account:

| ★ Email Address: | Enter person's company email address |
| Message to Creator: | |

Step 3. Provide the required domain identifier and the preferred account name:

Account Information

The Account Domain Identifier will be used to **uniquely identify the account**. It is based on the email address of the person creating the account by default and must belong to the company that will own this account. Learn More

★ Account Domain Identifier: domainidentifier.com Edit
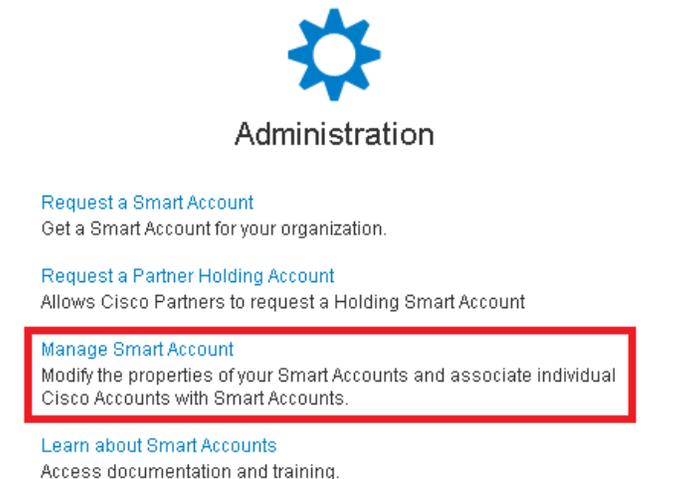
★ Account Name: Account Name

Step 4. The account request will be pending an approval of the Account Domain Identifier. A subsequent email will be sent to the requester to complete the setup process:

Adding Users to a Smart Account

Smart Account user management is available in the Administration section of software.cisco.com. Take the following steps to add a new user to a Smart Account:

Step 1. After logging in Select "Manage Smart Account" in the Administration section:

Step 2. Choose the "Users" Tab:

Step 3. Select "New User" and provide the required email address, cisco.com ID and role selection. Roles may be defined to manage the entire Smart Account or specific Virtual Accounts
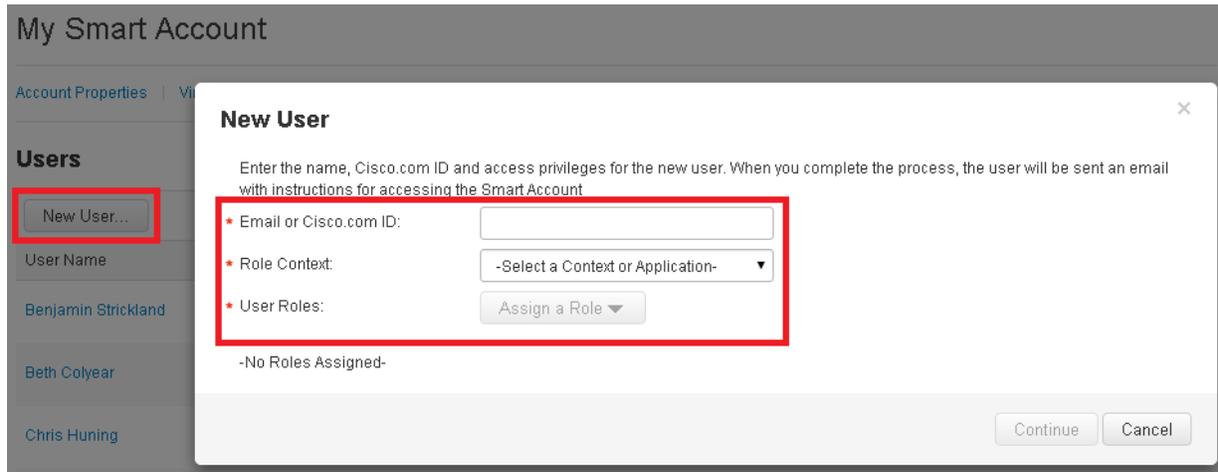
Step 4. Click "Continue" to complete the process
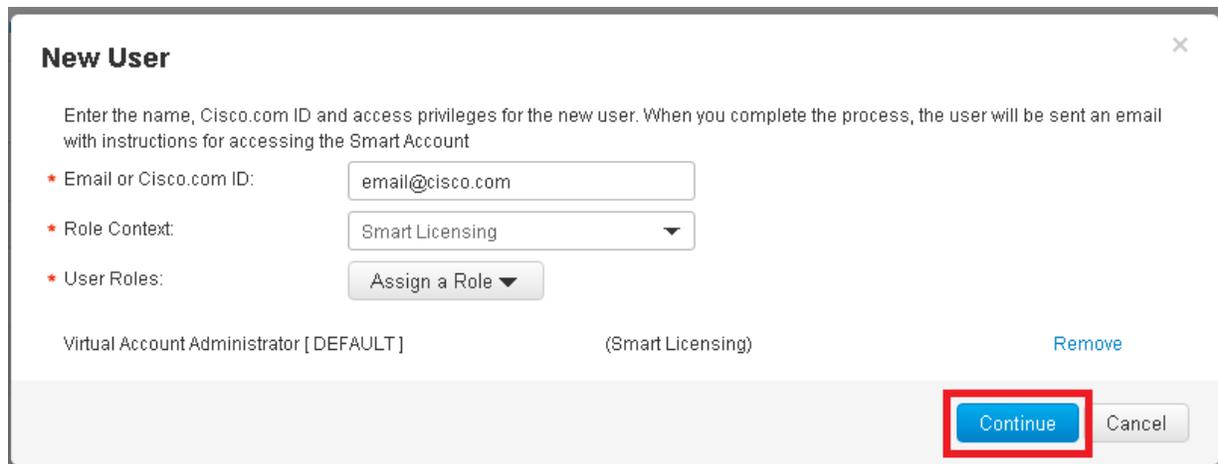
Cisco Smart Software Manager (CSSM)

Cisco Smart Software Manager (CSSM) enables the management of smart software licenses from a single portal. CSSM resides on Cisco Software Central (software.cisco.com) which allows you to perform other functions such as order products via Cisco Commerce, manage Smart Accounts, renew and upgrade software, and migration of traditional to Smart licenses. To access the Cisco Smart Software Manager, click here.

Privacy

There are three key elements that must be exchanged with the Cisco Smart Software Manager over https:

- Trusted Unique Identifier – This is the device ID (SUDI/SUVI/ID)
- Organizational Identifier – In a numerical format to associate product with a Smart/Virtual Account.
- Licenses consumed – Allows the Cisco Smart Software Manager to understand the license type and level of consumption

Product Smart License State Flow
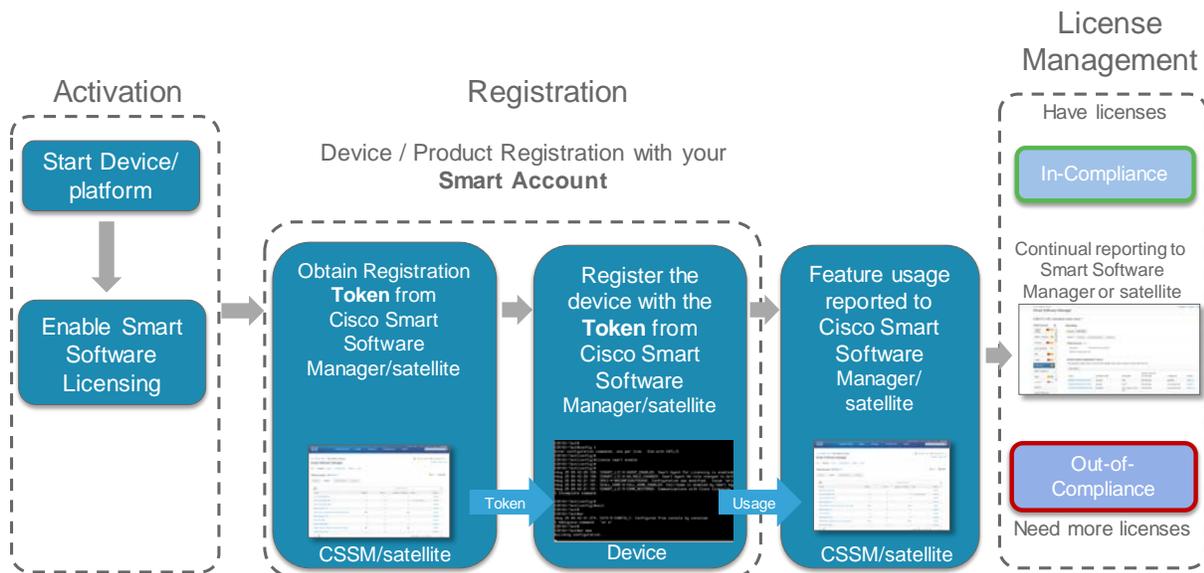
Starting the Smart Licensing Tool (Nodes or Devices)

The Smart Licensing Tool can be found in the /bin directory of the product instance. For example, the directory path for a default install is /opt/cisco/kinetic/efm_license/bin:

To start the smart licensing tool, type the following:
```
# /opt/cisco/kinetic/efm_license/bin/efm-device-licensing.sh
```

To start the smart licensing tool for NODES type the following:
```
# /opt/cisco/kinetic/efm_license/bin/efm-node-licensing.sh
```

Upon the first start of the tool, you will be requested to confirm the presented EULA terms and conditions. You can only proceed to use the tool, once you confirm the EULA. Otherwise the tool will terminate and you will not be allowed to use the licensing functions.

Using the Licensing Tool

The Kinetic - EFM Licensing Tool is a command line tool. It will display the command line prompt ``(exec)#`` and wait for your input. You can use the ``help`` command to find information about all supported commands. To exit the tool, use the ``quit`` command. The tool requires internet connection in order to work correctly.

The first user starting the tool will set the permissions for the tool. Only this user will be able to use the tool.

Evaluation Mode

Evaluation Mode is the default mode when you have Smart License enabled, but not yet successfully registered. In this mode, there is a **90 day Evaluation Period**. If entitlements are in use then the **Evaluation timer** will be started. However, the timer doesn't decrement until an entitlement is requested.

The Evaluation Period lasts for **90 days of usage**, *not* 90 calendar days.

NOTE: There is **1 Evaluation Period** for the entire device. **It is not per entitlement**.

You can check the status of your license using the ``show license status`` command. It will inform you about the remaining evaluation period.

```
(exec)# show license status

Smart Licensing is ENABLED

Registration:
  Status: UNREGISTERED
  Export-Controlled Functionality: Not Allowed

License Authorization:
  Status: EVAL MODE
  Evaluation Period Remaining: 74 days, 21 hr, 56 min, 42 sec
  Last Communication Attempt: NONE
```

Registering Your Product

A product instance must be registered to CSSM backend or satellite to establish a secured connection and to identify itself as being part of the customer Smart Account. It needs a registration token to do so. A single registration ID token can be used across multiple product
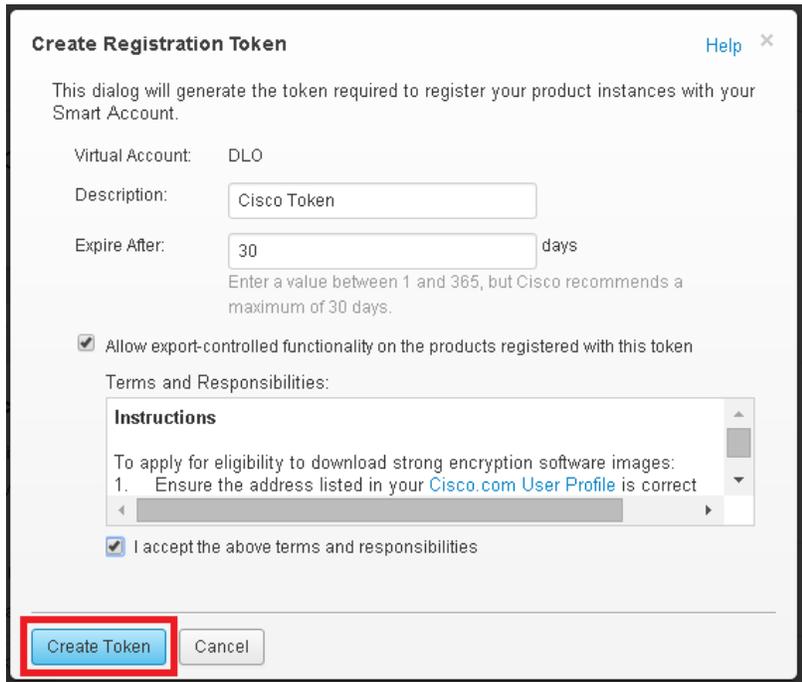
families and on thousands of product instances. Once a product instance is registered, this registration Id token has no use. So even this expires or is revoked or removed, the product instance will still be able to communicate to CSSM or satellite. However, if the same product is de-registered and need to be registered again, it will need a valid token to do so.

Step 1. Obtain or copy token ID

To create a new token, log into the Cisco Smart Software Manager, select the appropriate Virtual Account and in the General tab, select "New Token":

Product Instance Registration Tokens

The registration tokens below can be used to register new product instances to this virtual account.

New Token...
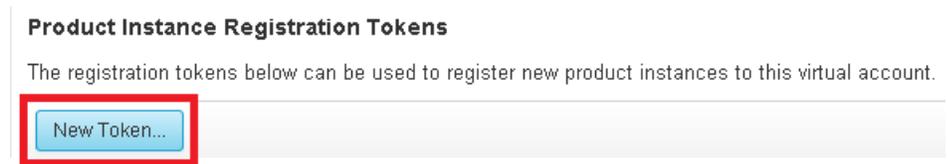
Follow the dialog to provide a name, duration and export compliance applicability before accepting the terms and responsibilities. Choose "Create Token" to continue.

Create Registration Token   Help ×

This dialog will generate the token required to register your product instances with your Smart Account.

Virtual Account: DLO

Description: Cisco Token

Expire After: 30   days

Enter a value between 1 and 365, but Cisco recommends a maximum of 30 days.

☑ Allow export-controlled functionality on the products registered with this token

Terms and Responsibilities:

Instructions

To apply for eligibility to download strong encryption software images:
1.   Ensure the address listed in your Cisco.com User Profile is correct

☑ I accept the above terms and responsibilities

Create Token   Cancel

Copy the token ID. The Cisco Smart Software Manager will respond with a dialogue indicating that the token has been copied to your clipboard.

Step 2. Register the product

Once you have a Product Instance Registration ID token, you can register your currently unregistered product instance and request an entitlement. The registration is performed by the ``license smart register idtoken <token id>`` command.

```
(exec)# license smart register idtoken <your registration token id>
  Registration process is in progress. Use the 'show license status' command
    to check the progress and result.


(exec)# show license status
  Smart Licensing is ENABLED

  Registration:
    Status: REGISTERED
    Smart Account: <account name>
    Virtual Account: <account>
    Export-Controlled Functionality: Allowed
    Initial Registration: SUCCEEDED on Apr 4 11:16:30 2017 UTC
    Last Renewal Attempt: SUCCEEDED on Apr 4 11:16:30 2017 UTC
    Next Renewal Attempt: Oct 1 11:16:30 2017 UTC
    Registration Expires: Apr 4 11:10:28 2018 UTC

  License Authorization:
    Status: No Licenses in Use
    Last Communication Attempt: SUCCEEDED on Apr 4 11:16:33 2017 UTC
    Next Communication Attempt: NONE
```

It may take some time before the registration is ready and the licensing information is shown.

If your product instance could not be registered, an error message will describe the type of problem encountered. A problem could be that the Product Instance Registration Token has already expired. It could also be that product was already registered previously. If this is the case, you can use the ``force`` flag for the registration and overwrite a previous registration.

```
(exec)# license smart register idtoken <your registration token id> force
Registration process is in progress. Use the 'show license status' command
  to check the progress and result.
```

Before you can use your IoT DataConnect - Edge Fog Fabric product instance, you have to request an entitlement by invoking the ``license smart request entitlement`` command.

```
(exec)# license smart request entitlement 1
Authorization process is in progress. Use the 'show license status' command
  to check the progress and result.

(exec)# show license status
Smart Licensing is ENABLED
```

```
Registration:
  Status: REGISTERED
  Smart Account: <account name>
  Virtual Account: <account>
  Export-Controlled Functionality: Allowed
  Initial Registration: SUCCEEDED on Apr 4 11:16:30 2017 UTC
  Last Renewal Attempt: SUCCEEDED on Apr 4 11:16:30 2017 UTC
  Next Renewal Attempt: Oct 1 11:16:30 2017 UTC
  Registration Expires: Apr 4 11:10:28 2018 UTC

License Authorization:
  Status: AUTHORIZED on Apr 4 11:16:58 2017 UTC
  Last Communication Attempt: SUCCEEDED on Apr 4 11:16:58 2017 UTC
  Next Communication Attempt: May 4 11:16:36 2017 UTC
  Communication Deadline: Apr 4 11:10:28 2018 UTC
```

If the registration has been performed successfully, you can start using your Kinetic - Edge & Fog Processing Module product instance. Once you register the product and if you have not purchased sufficient licenses (entitlements) for EFM, your Virtual Account shows an Out-of-Compliance (OOC) status. If you have purchased sufficient licenses, your Virtual Account show up as In-Compliance. You can also see this on the product itself by issuing a "`smart license status`" command.

Checking your License Status

There are a couple of commands you can use to show the status of your license. They all start with the ``show`` command. Try the ``help`` command to find all available ``show`` commands.

Typically, you would use the ``show license status`` command:

```
(exec)# show license status
Smart Licensing is ENABLED

Registration:
Status: REGISTERED
  Smart Account: <account name>
  Virtual Account: <account>
  Export-Controlled Functionality: Allowed
  Initial Registration: SUCCEEDED on Apr 4 11:16:30 2017 UTC
  Last Renewal Attempt: SUCCEEDED on Apr 4 11:16:30 2017 UTC
  Next Renewal Attempt: Oct 1 11:16:30 2017 UTC
  Registration Expires: Apr 4 11:10:28 2018 UTC

License Authorization:
  Status: AUTHORIZED on Apr 4 11:16:58 2017 UTC
```

```
Last Communication Attempt: SUCCEEDED on Apr 4 11:16:58 2017 UTC
Next Communication Attempt: May 4 11:16:36 2017 UTC
Communication Deadline: Apr 4 11:10:28 2018 UTC
```

Deregistering Your Product

Deregistering your product releases its licenses back to the pool belonging to the Virtual Account and puts the product instance back in evaluation mode, if any evaluation period is left. If not it will be in evaluation expiration status.

If you have to deregister your product instance, use the ``license smart deregister`` command:

```
(exec)# license smart deregister
Deregistration process is in progress. Use the 'show license status' command
to check the progress and result.
```

Now check the status of your product instance:

```
(exec)# show license status
Smart Licensing is ENABLED

Registration:
  Status: UNREGISTERED
  Export-Controlled Functionality: Not Allowed

License Authorization:
  Status: No Licenses in Use
  Last Communication Attempt: SUCCEEDED on Apr 5 09:56:32 2017 UTC
  Next Communication Attempt: NONE
```

Changing the Transport Gateway

If you have to configure a Transport Gateway or HTTP proxy instead of a direct connection to Cisco (the default setting), you can use the ``call-home destination address http <url>`` command to change the URL the tool connects to. You can only change the call-home destination before registering your product.

```
(exec)# call-home destination address http <new destination url to connect>
```

Registration and License Entitlement Renewal

The Kinetic - EFM Licensing Tool will automatically renew the registration and license entitlement, whether you start it on a regular basis or let it run without closing it. If needed, you may renew the registration and the license entitlement manually using the ``license smart renew ID`` and ``license smart renew auth`` commands.

Monitoring

While the tool is running, it will monitor periodically the licensing status of your product and check the compliance status with the Cisco Smart Software Manager (CSSM). If an Out-of-Compliance situation exists (i.e. due to a shortage), the ``show license status`` command will show you detailed information about the problem. Additionally, the tool will display notification messages about the compliance issues. These notification messages will also be written to the system log facility of your operating system.

License Authorization Status

The License Authorization status has 6 primary available states:

| Status	Meaning
Unconfigured	Smart Licensing has not been enabled
Unidentified	Smart Software Licensing has been enabled but the registration has not taken place.
Registered	Device registration has been completed and an ID certificate has been received that will be used for future communication with the Cisco licensing authority.
Authorized	Registration has been completed with a valid Smart Account and license consumption has begun. This is an indication of having sufficient licenses.
Out of Compliance	Consumption exceeds available licenses in the Smart Account.
Authorization Expired	The device has been unable to communicate with the Cisco Smart Software Manager for an extended period of time. Typically, after 90 days this state will be present. The device will retry to contact the CSSM every hour in order to renew the authorization until the registration period expires.

Connecting to Cisco Smart Software Manager satellite

As mentioned above, Cisco Smart Software Manager satellite is another deployment option for Smart Licensing reporting, allowing customers to manage software licenses on premises.

Devices register locally to report license consumption to the on-prem satellite server. Synchronization between the Cisco Smart Software Manager satellite and the Cisco Smart Software Manager should occur every 30 days to avoid licensing information to stale. This is because new purchases from Cisco Commerce would be reflected on the Smart Account off CSSM and license consumption is reflected off the satellite. Thus, to get a full view of license purchases and consumption, this synchronization needs to occur regularly. Any instance of Smart Software Manager satellite that has not synchronized with Cisco Smart Software Manager for more than 31 days receives an overdue alert (on day 32 or after). After 90 days of non-synchronization, the satellite is removed from Cisco Smart Software Manager, existing product instances associated with it continue to be registered and function for up to 365 days from the last registration renew; authorization renews will stop working; and no new product can be registered. The only way for the satellite to recover is to re-deploy a new satellite, re-register itself to Smart Software Manager, and re-register previous product instances.

EFF can connect to Cisco Smart Software Manager via a call-home configuration change to point to satellite IP address or Fully Qualified Domain Name (FQDN) instead of CSSM. Satellite virtual machine would need to be installed and registered to CSSM before EFF can register with satellite. All other Smart Licensing functions and user interface should work similarly to CSSM.

The following diagram shows the steps to get Smart Software Manager satellite setup and operational:
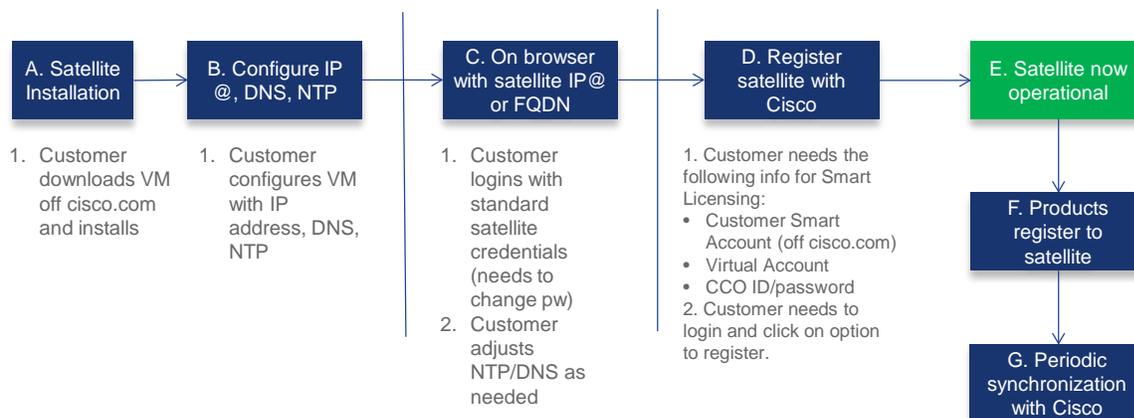
To learn more about how to set up Cisco Smart Software Manager satellite, refer to the User Guide at http://www.cisco.com/go/smartsatellite.

Obtaining documentation and submitting a service request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html

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