Cisco Software Activation: Maintenance Provider Guidelines for Managing Software Activation

Cisco® IOS® Software is covered by a right-to-use license, with each license conferring the right to use Cisco IOS Software on a single device. Traditionally Cisco has not tracked licenses or provided activation processes for its software. Usage automatically constitutes acceptance of the license agreement and validates the license for the end user. Cisco IOS Software licenses are nontransferable between end users.

A new approach to software activation makes it easier for Cisco service and maintenance providers to offer trials of new features, simplify software upgrades and feature deployment, and reduce software inventories. The new approach is initially being implemented on Cisco Catalyst® 3750-E and 3560-E Switches and Cisco 860 and 880 Integrated Services Routers and is designed to fit in with providers' existing business processes. Cisco is introducing the new software activation method gradually, starting with selected new products, which allows providers to incrementally integrate the new software activation model into their existing processes. This document provides a brief overview of Cisco software activation and offers guidelines for integrating software activation into existing hardware replacement processes.

Overview

Customers are requesting easier ways to track their software systems, add service features, and upgrade images. Now Cisco is helping maintenance providers simplify these tasks for their customers. With the new software activation model, each network device type has a universal Cisco IOS Software image already installed. The universal image contains all software features available for the device and the software version, all in one binary. A software activation license key, preinstalled in the device prior to shipping from Cisco, activates specific functionality. Each software activation license key is unique to a specific device.

Software activation license keys remain active for the duration of the Cisco IOS Software right-to-use license. If the software license is perpetual, the software activation license key will never expire. For a Cisco IOS Software feature set license, a new software activation license key is needed only when upgrading to a new feature set. For example, advancing a device from the IP Base feature set to IP Services requires a new software activation license key. However, simply upgrading software images for maintenance purposes, from 12.2(35)SE to 12.2(45)SE for example, does not require a new key. When Cisco IOS Software is booted, it examines the software activation license key installed on the device and activates the appropriate feature set.

Software activation keys for most products can be delivered instantly, using email. Electronic delivery eliminates the need for maintenance providers to stock software upgrades, reducing inventory costs.

Integrating Software Activation into Hardware Replacement Processes

All software activation keys are made unique by encoding the hardware device's product identifier and serial number into the key when it is created. Since activated keys are logically tied to a specific device, provisions must be made to replace the keys in the event of a hardware failure. When a failed device is replaced, the activated licenses must be logically and physically transferred to the replacement device using a process called rehosting. Rehosting assumes the failed device is inoperable and uses the original activation records at Cisco to recreate the device's license keys. The keys are regenerated using the replacement device's product identifier and serial number and then delivered electronically for installation.

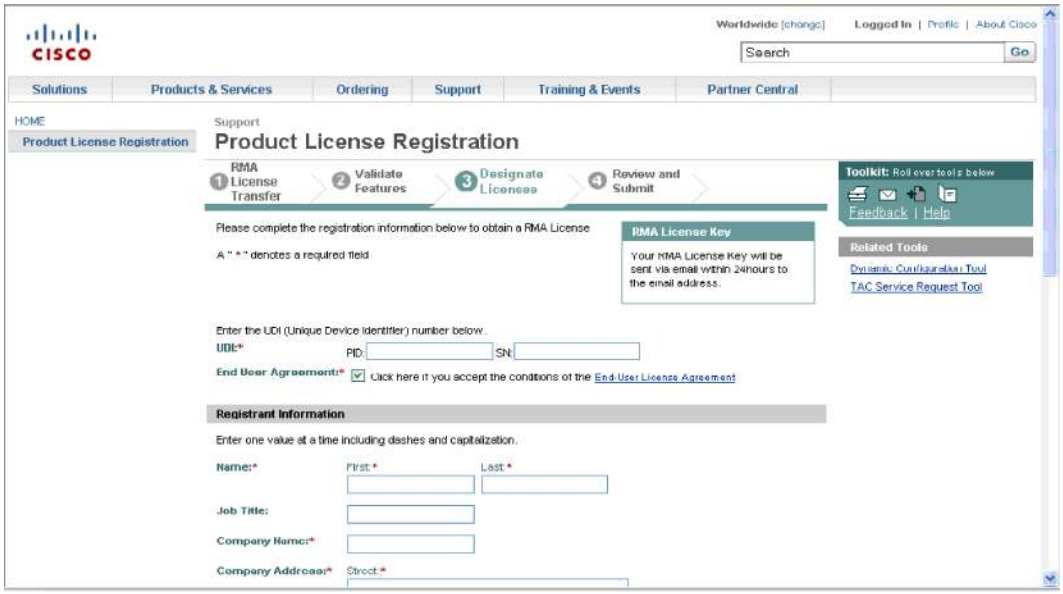
Maintenance providers who offer hardware replacement services must now include the rehosting step when replacing devices containing license keys. To make rehosting easy, Cisco has created a simple, four-step process to help enable rehosting online:

1. Determine the product ID and serial number of both the failed device and the replacement device. The Cisco Product Identification Tool can be used to help identify and retrieve device serial numbers. Cisco Product Identification Tool is available at http://tools.cisco.com/Support/CPI/index.do.
2. Go to the license portal at Cisco.com and enter these numbers and, optionally, a Cisco Return Materials Authorization (RMA) number into the "Register for an RMA a License" tool at http://www.cisco.com/go/license (Figure 1).

Figure 1. Information for Returned Switch

3. The license portal automatically determines the licenses associated with the failed device and regenerates the software activation license keys for the replacement device (Figure 2).

Figure 2. Information for New Replacement Switch



4. The provider simply installs the new keys on the replacement device.

The rehosting process is designed to be flexible so that providers can easily integrate it with their current RMA workflows. Rehosting is independent of the Cisco RMA process; it can be performed before or after an RMA is opened with Cisco. In fact, it can be initiated as soon as the product ID and serial number of the failed device and replacement are known.

The following four examples illustrate how rehosting can be integrated into common hardware replacement processes used by service and maintenance providers.

Example 1: The Field Engineer Collects a Spare before an On-site Visit

In this example, a field engineer picks up a spare part, preconfigures it, and travels to a customer location to replace a failed device. To transfer the license keys, the engineer can perform the rehost while preconfiguring it at the depot. The process works as follows:

1. A customer reports a hardware failure; rehosting requires the serial number and product identifier of the failed hardware unit, so this information should be collected when the customer reports a failure.
2. An engineer is dispatched to the site.
3. On the way, the engineer visits the logistics depot to collect a spare unit.
4. At the depot, the engineer downloads and applies the required Cisco IOS Software image and configuration to the spare. The engineer can use the Cisco rehost web portal (described above) or Cisco License Manager, a free software application that helps enable system administrators to easily acquire, deploy, and manage Cisco IOS Software licenses on devices that require Cisco licensing, to obtain the necessary replacement license key(s) and apply them to the replacement device.
5. Engineer travels to site to replace the hardware.

For situations where service-level agreements (SLAs) do not provide enough time for rehost, or when serial number information is not immediately available, a built-in, temporary license can be activated on the replacement device. The license will remain in effect for 60 days, during which time the rehosted license keys can be obtained and applied. Maintenance providers may also

choose to stock their depots with spares containing preloaded license keys for select customer software configurations. This approach makes it easier to respond quickly to customers who have time-critical SLAs or large hardware deployments with common feature configurations.

Example 2: Spare Dispatched by Logistics and Software Applied Onsite by Field Engineer

In this example, the field engineer travels to the site but the spare part is shipped separately

1. The customer reports a hardware failure.
2. An engineer is dispatched to the site.
3. The logistics team ships a spare directly to the customer location.
4. The engineer arrives at the site and collects the spare unit.
5. The engineer uses Cisco.com or a CD library to download and apply the required Cisco IOS Software image and configuration to the spare device. If Cisco.com access is available, the engineer can also perform the rehost while onsite.

Devices covered by a maintenance contract are often installed on isolated networks and cannot be accessed remotely over the Internet. Sometimes these devices are in remote locations without laptop Internet access for the engineer to rehost the license. For servicing remote, non-Internet connected hardware, maintenance providers can stock the depot with spares containing preloaded license keys for select customer software configurations. Spares can also be stocked with license key combinations that accommodate the software configurations stored on the engineer's CD library.

Another alternative is to use the built-in temporary license. If the product ID and serial number are unavailable or no Internet connectivity is available onsite, the provider can still enable the required feature sets by activating the temporary license built into all Cisco IOS Software images. The provider has 60 days to obtain the permanent software activation license key and install it on the replacement device. When the 60-day period expires, the device will continue to operate normally until rebooted. After the reboot, the device will default to the original functionality before the temporary license was activated. For unusual circumstances, the Cisco Technical Assistance Center (TAC) can provide an extension license.

Example 3: Logistics Applies Software before Dispatching Spares

In this example, a field engineer travels onsite and a preconfigured spare is shipped separately from a depot. In this model, the logistics team can use Cisco.com or Cisco License Manager to rehost the license key(s) at step 4 when the software is being loaded.

1. The customer reports a hardware failure; rehosting requires the serial number and product identifier of the failed hardware unit, so this information should be collected when the customer reports a failure.
2. An engineer is dispatched to the site.
3. The logistics team locates a spare unit.
4. The logistics team identifies the appropriate Cisco IOS Software image from records and applies it to the spare before it is shipped.
5. The hardware is shipped directly to the customer's location.
6. The engineer arrives at the site, collects the spare unit, and installs it.

Example 4: Logistics Dispatches the Spare and the Customer Applies the Software

For “hardware-only” contracts, a field engineer may or may not be sent onsite. The maintenance provider ships the spare directly to the site, and the customers perform all software and license key installation and configuration. The customer should be instructed to record and track the serial number and product ID data for all failed and replacement hardware. With this information, customers can replace license keys using one of three methods:

- Use the rehost web portal on Cisco.com and download replacement keys to the spare device
- Use the Cisco License Manager application to obtain replacement keys for the spare device
- Open a license service request with the Cisco Technical Assistance Center and request a license rehost

In this example, the process works as follows:

1. The customer reports a hardware failure
2. The logistics team locates a spare unit and ships it directly to the customer’s location.
3. Optionally, an engineer arrives at the site, collects the spare unit, and installs it.
4. The customer applies the appropriate software and configuration.
5. The customer ships the faulty hardware back to the maintenance provider.

Simplifying Asset Management with Cisco License Manager

An important element of the new Cisco software licensing model is improved asset management using Cisco License Manager. As service providers deploy new or temporary licenses, Cisco License Manager captures the feature part number ID, license features, and license quantities and records them for future tracking. Cisco License Manager works in the following way:

- With a single click, Cisco License Manager identifies devices on the network by IP address, automatically locating each and establishing a secure connection with the license agent on each device.
- Cisco License Manager displays the devices in the network and gathers the licensing information for each, saving it in the license management database. The information gathered includes which licenses are deployed on the devices, as well as other licensable features on each device that have not been activated yet.
- License information for all devices can be easily browsed or generated in a Device Summary Information report. Cisco License Manager is installed on a server and can remotely manage software activation and licenses for various customer networks. With access control lists on devices and Product Authorization Keys (PAKs), Cisco License Manager can isolate one customer’s network information from that of other customers, helping enable providers to securely build and track software asset inventories for their customers. Software license management can provide an opportunity for maintenance providers to deliver added value for customers and enhance customer relationships. The Cisco License Manager client and server can also be installed on a technician’s laptop system for managing licenses at customer sites.

Automating Software Activation with Cisco License Manager

Cisco License Manager can accelerate software license and feature set activation by automating the process for one device or up to 30,000 devices:

1. When the purchased PAK is received, the service provider enters it into Cisco License Manager.
2. Cisco License Manager sends the product IDs and serial numbers of the relevant devices, together with the PAK, to the Cisco licensing system over a secure connection.
3. Cisco returns the appropriate license files to Cisco License Manager.
4. Cisco License Manager automatically installs the licenses on the devices, or can store the license in its inventory.

Virtualizing Management for Multiple Customers

Cisco License Manager can significantly simplify maintenance providers' abilities to manage licenses for multiple customer installations. By "virtualizing" or separating views by customer, providers can quickly and easily check the status of licenses, verify deployment, monitor expiration dates of temporary licenses, identify unused features, and inventory PAKs and licenses for all of their customers. They can even provide their customers with access to Cisco License Manager for secure viewing of their software assets and PAKs.

Summary

The new Cisco software activation process can fit into service and maintenance providers' current processes, helping them improve operational efficiency and customer responsiveness. Cisco License Manager can play a vital role in enabling them to accurately track software licenses installed in customer devices, simplifying license management for large numbers of devices across multiple clients' networks.

For more information about Cisco IOS Software activation, please visit www.cisco.com/go/sa.

Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters
Cisco Systems International BV
Amsterdam, The Netherlands

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at **www.cisco.com/go/offices.**

Printed in USA

DRMKT-14890 06/08