Cisco IOS Release 15.9(3)M2 - Release Notes for Cisco 5900 Embedded Services Routers (ESR) platforms

The following release notes support the Cisco IOS 15.9(3)M2 release. These releases support the Cisco 5900 Embedded Services Routers (ESR) platforms. These release notes are updated to describe new features, limitations, troubleshooting, recommended configurations, caveats, and how to obtain support and documentation.

January 6, 2023

Contents

This publication consists of the following sections:

Image Information and Supported Platforms

Note: You must have a Cisco.com account to download the software.

Cisco IOS Release 15.9(3)M2 includes the following Cisco IOS images:

- c5915-adventerprisek9-mz.SPA
- c5915-entbase-mz.SPA
- c5921i86-universalk9-ms.SPA
- c5921i86-entbasek9-ms.SPA
- c5921i86-entbasek9-tar.SPA
- c5921i86-universalk9-tar.SPA
- c5921x86-universalk9-ms.SPA
- c5921x86-entbasek9-ms.SPA

- c5921x86-entbasek9-tar.SPA
- c5921x86-universalk9_npe-ms.SPA
- c5921x86-universalk9-tar.SPA
- c5921x86-universalk9_npe-tar.SPA
- c5930-adventerprisek9-mz.SPA
- c5921i86-universalk9_npe-ms.SPA
- c5921i86-universalk9_npe-tar.SPA

Software Downloads

The latest image files for the 5900 product family can be found here:

https://software.cisco.com/download/home/282506143

Major Enhancements

This section provides details on new features and functionality available in this release.

High Security (HSEC) License Support

The HSEC license removes the curtailment enforced by the U.S. government export restrictions on the encrypted tunnel count and encrypted throughput. Based on export compliance requirement, customers need to purchase an HSEC license to be provided with unlimited encrypted throughput, and unlimited number of crypto resources like encrypted tunnels and sessions.

HSEC implementation on the 5921 restricts encrypted throughput to 250Mbps for non-HSEC licenses. Existing licenses with a throughput level greater than 250Mbps, will be HSEC licenses from this point forward. This requires new mapping between some of the PIDs.

License Type	License Description	New HSEC PID
Smart	Level 6 - 500 Mbps (Adv Ent)	LS-5921-XL6-HSEC-K9
Smart	Level 6 – 500 Mbps (Ent Base)	LS-5921-BL6-HSEC-K9
Traditional	Level 6 - 500 Mbps	L-5921-XL6-HSEC-K9
PLR 500	PLR 500Mbps	LS-5921-PL5-HSEC-K9
PLR Uncapped	PLR Unlimited	LS-5921-PLX-HSEC-K9

Permanent License Reservation (PLR)

Note: PLR support began with the 15.6(3)M1 release, with Unlimited throughput level. Starting with15.9(3)M, support was added for different throughput levels.

Note: The sale of PLR licenses is limited to government defense and intelligence agency customers.

The PLR licensing feature allows the use of reserved licenses in a disconnected mode. You can optionally request permanent licenses for each 5921. Permanent licenses do not require periodic access to the License Authority. PLR is supported on the universalk9 and universalk9_npe images.

You can have a pool of PLR entitlements from which to draw from in the virtual account on the Cisco Smart Software Manager (CSSM). When the CSSM validates the reservation request code generated by a product instance doing Universal PLR, it will allocate one of these entitlements to the product instance and generate a string (authorization code) to enter (install) on that product instance.

When you install the authorization code, generated by the CSSM, on the product instance any entitlement request made by the product to the Smart Agent will be authorized.

Licensing caveats are as follows:

- Smart license 500Mbps is an HSEC license, therefore, it will not be supported in Evaluation mode
- For non-HSEC licenses the crypto resource restrictions are:
  - Encrypted tunnels - 225
  - Encrypted sessions - 1000
- Crypto resources reserve and free are handled using common PI implementation CERM.

Additional Throughput Level - C5921

The 15.9(3)M2 release supports a new PLR throughput level of 500 Mbps. See Table 1.

PLR licensing feature allows using the reserved licenses in a disconnected mode. There are two types of reservation available, specific reservation and Universal reservation. At this time, PLR supports only Universal reservation. To enhance existing PLR feature the request is to provide support of different throughput levels, where as it support only unlimited/max throughput in current implementation. Base PLR support available only with universalk9 and univeralk9_npe images.

In Universal PLR, once **license smart reservation** cli is configured and **license smart reservation install** has been successful, the below unlimited throughput entitlement will be activated based on throughput configured, before generating reservation request code.

Table 1 PLR Entitlement

IOS Feature Name	Max Forwarding Rate
c5921-x86-UPL-10Mbps	10Mbps
c5921-x86-UPL-50Mbps	50Mbps
c5921-x86-UPL-100Mbps	100Mbps
c5921-x86-UPL-200Mbps	200Mbps
c5921-x86-UPL-500Mbps	500Mbps

Command Line Interface

The following lists some of the CLIs that pertain to this feature.

Enable/disable license reservation feature:

```
#[no] license smart reservation
```

Configure platform plr-throughput level with appropriate throughput before generating request code:

```
(config)#[no] license platform plr-throughput level ?
c5921-x86-UPL-10Mbps   10 Mbps throughput rate
c5921-x86-UPL-50Mbps   50 Mbps throughput rate
c5921-x86-UPL-100Mbps  100 Mbps throughput rate
```

```
c5921-x86-UPL-200Mbps  200 Mbps throughput rate
c5921-x86-UPL-500Mbps  500 Mbps throughput rate
```

Prints the “Reservation Request Code” that must be pasted into the portal to start the reservation process:

```
(exec)#license smart reservation request [specific | universal]
```

Enters the “Reservation Authorization Code” into the device to complete the process.

```
(exec)#license smart reservation install <authorization code>
```

Prints the “Reservation Return Code” that must be pasted into the portal to return licenses and delete product instance:

Note: Uses the authorization code previously installed.

```
(exec)#license smart reservation return
```

Prints the “Reservation Return Code” that must be pasted into the portal to return licenses and delete product instance.

Note: Uses the authorization code from the command line.

```
(exec)#license smart reservation return | return authorization <authorization code>
```

Cancels a reservation that is in progress and allows entitlement changes.

```
(exec)#license smart reservation cancel
```

In order to switch between license throughputs, the old reservation should be returned if it is already installed:

```
(exec)#license smart reservation return
```

Note: Take the return code and paste it into the CSSM portal to remove the license.

To switch between license throughputs, when license is not installed but a request code is generated, the old reservation code should be canceled and then generate a new one:

```
(exec)#license smart reservation cancel
(config)#license platform plr-throughput level c5921-x86-50Mbps
(exec)#license smart reservation request universal
```

Related Documentation

The following documentation is available:

- Cisco 5900 Embedded Services Routers

  http://www.cisco.com/c/en/us/support/routers/5900-series-embedded-services-routers/tsd-products-support-series-home.html

- IOS Bulletins—You can find bulletins at:

  http://www.cisco.com/cisco/web/psa/default.html?mode=prod&level0=268438303

- Cisco IOS 15.9M cross-platform release notes:

  https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/15-9m/release/notes/15-9-3-m-rel-notes.html

Caveats

Caveats describe unexpected behavior in Cisco IOS releases. Caveats listed as open in a prior release are carried forward to the next release as either open or resolved.

Note: You must have a Cisco.com account to log in and access the Cisco Bug Search Tool. If you do not have one, you can register for an account.

For more information about the Cisco Bug Search Tool, see the Bug Search Tool Help & FAQ.

Cisco IOS Release 15.9(3)M

The following sections list caveats for Cisco IOS Release 15.9(3)M:

Open Caveats

- **CSCvu99656**

  In DLEP, any restart of the routing protocol process is not updating the metrics.

  Symptoms: In a DLEP environment, if there is an OSPFv3 or eigrp protocol reset between two routers, it is not updating the metrics with DLEP peers.

  Workaround: None

- **CSCvv15904**

  On the C5921, a crash is seen when setting CNS id using TCL script.

  Workaround: None

Resolved Caveats

None

Communications, Services, and Additional Information

- To receive timely, relevant information from Cisco, sign up at Cisco Profile Manager.
- To get the business impact you're looking for with the technologies that matter, visit Cisco Services.
- To submit a service request, visit Cisco Support.
- To discover and browse secure, validated enterprise-class apps, products, solutions and services, visit Cisco Marketplace.
- To obtain general networking, training, and certification titles, visit Cisco Press.
- To find warranty information for a specific product or product family, access Cisco Warranty Finder.

Modifications to this product not authorized by Cisco could void the FCC approval and negate your authority to operate the product.