Cisco IOS Release 15.9(3)M – Release Notes for Cisco 5900 Embedded Services Routers (ESR) platforms

The following release notes support the Cisco IOS 15.9(3)M 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.

July 25, 2019

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)M 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

- c5940-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.

Proxy Mobile IPv6 (PMIP) – C5915 and c5921

PMIP feature is now supported, as the design and implementation are platform independent and expected to work for the c5915 and c5921 platforms. Memory consumption depends on the number of mobile nodes & corresponding mobility sessions on a LMA/MAG. To support a single user session LMA/MAG needs:

- 48 bytes in binding module

- 164 bytes for each binding.

- 48 bytes for each Mobile policy entry

PLR with multiple throughput levels – C5921

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.

Major Enhancements

Table 1   PLR Entitlement

Entitlement Tag	IOS Feature Name	Max Forwarding Rate
regid.2019-03.com.cisco.c5921-x86-UPL-10Mbps,1.0_d1f80a70 -6249-4f66-86d8-8327f0c649b7	c5921-x86-UPL-10Mbps	10Mbps
regid.2019-03.com.cisco.c5921-x86-UPL-50Mbps,1.0_300cb38a -1bab-4932-9d34-9ebf82d67d30	c5921-x86-UPL-50Mbps	50Mbps
regid.2019-03.com.cisco.c5921-x86-UPL-100Mbps,1.0_9a07c9e e-b4c8-434c-a49c-3b0d3608ae7a	c5921-x86-UPL-100Mbps	100Mbps
regid.2019-03.com.cisco.c5921-x86-UPL-200Mbps,1.0_1554360 8-4167-4f7e-8a57-bc625bacc178	c5921-x86-UPL-200Mbps	200Mbps

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
```

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.

Major Enhancements

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
```

Intel 64-bit support on the C5921

Previous versions of the C5921 Operating System would only support 32 bit operating systems. Starting with this release, support has been added for 64 bit operating systems with the addition of new libraries available to install.

There is a new image available for use on 64 bit machines named **c5921x86-universalk9-SSA.**<*release*>. The contents of the tarfile for the release will be:

- swr_reload.1

- swr_reload

- c5921x86-universalk9-ms.SSA

- c5921x86-universalk9-ms.md5

- swrvcon.1

- swrvcon

- libdyncs.so

- libc_2_29

- libc_2_23

Files that are new or modified include:

c5921-swr-init.sh - Modified to choose appropriate libraries and load the image based on OS type for 64-bit machines and works as it is for 32-bit machines.

swr_reload.sh - Introduced to use swr_reload by loading appropriate libraries and it required only for 64- bit machines.

swrvcon.sh - Introduced to use swrvcon by loading appropriate libraries and it required only for 64- bit machines.

SNMP Notification Event Detector - C5930

The Cisco IOS Embedded Event Manager is an infrastructure feature that provides unique customization capabilities and event driven automation within Cisco products.

Event detectors determine when an SNMP event occurs. Event detectors are separate systems that provide an interface between the agent being monitored, for example SNMP, and the EEM policies where an action can be implemented.

CLI Example

First configure snmp community string and snmp manager.

```
(config)#snmp-server community public RW
(config)#snmp-server manager
```

Then configure a snmp notification applet to run an eemscript if the router receives an snmp notification on destination address 192.168.1.1 for object id 1 whose value equals 10.

```
(config)#event manager applet test1
```

```
(config-applet)#event snmp-notification dest_ip_address 192.168.1.1 oid 1 op eq oid-val 10
(config-applet)#action 1 policy eem_script
```

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

- **CSCvq49768 - c5921**

  Showing an error message while doing **write memory** operation

  Symptoms: Log seen while doing write memory operation in c5921. This is not supported for this platform.

  Workaround: There is no workaround.

Resolved Caveats

The following caveats are fixed with this release:

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, using the Cisco Bug Search Tool (BST), submitting a service request, and gathering additional information, see What's New in Cisco Product Documentation at:
http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html.

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